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Address

THE PART SANITATION IS PLAYING IN THE CONSTRUCTION OF THE PANAMA CANAL *

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ANCON, PANAMA

The best way of showing what part sanitation is playing in the present canal work is to point out what the conditions would be if the present methods of sanitation were not in vogue, and then to present conditions as they actually are. The difference between the two pictures will fairly represent what is due to sanitation.

For some years the Isthmus of Panama has had about as bad a reputation for health as any locality in the world. Probably it would not be extreme to say that there is no other place that had as bad a reputation. The English official guide for pilots for the year 1903 made these remarks about the canal district:

> **The Panama Canal District is one of the hottest, wettest and most feverish regions in existence. Intermittent and malignant fevers are prevalent, and there is an epidemic of yellow fever at times. The death rate under normal conditions is large.—*West India Pilot*, vol. i, 6th ed., 1903.**

The history of the Isthmus amply justifies this reputation. Panama is nine degrees north of the equator. It has a heavy rainfall—about 71.70 inches (a ten years' average) at Ancon on the Pacific side, and 128.37 inches (average for thirty years) at Colon on the Atlantic. The temperature is warm all the year round, sufficiently so for mosquitoes to breed freely in all seasons. From the year 1520 it has been the favorite point in the western hemisphere for transit between the Atlantic and Pacific coasts. Towns of considerable size have been located on the Isthmus since that time. These towns have always had to rely for their water supply on rain water collected in cisterns and barrels. The yellow fever mosquito, the stegomyia, requires a warm climate for its existence; it can not survive frost. For laying its eggs and rearing its larvæ it needs rain water in a protected locality. For the development, then, of this particular species of mosquito the Isthmus of Panama possesses in an eminent degree all the requirements; namely, a warm climate, large rainfall, and towns almost entirely dependent on collected rain water for their supply.

Many other tropical American cities are just as favorably situated for the development of the yellow fever mosquito as is the city of Panama, so we must look for some other element, not present in them, as a cause for the pre-eminent reputation which the Isthmus of Panama has obtained as a yellow fever center. Wherever yellow fever prevails endemically the native population becomes immune to the disease. This is generally explained by saying that the native, as a child, has a mild attack of the disease which protects him in after-life. It is a fact that an attack of yellow fever gives the individual entire protection—about as much so as does an attack of smallpox. Therefore, when yellow fever has prevailed for a longer or shorter period in a locality, all the people capable of having the disease contract it and become immune. There being no more material for the disease to feed on, it dies out and disappears. If, however, a constant stream of foreigners is poured into this locality, they keep up the disease, and yellow fever will continue as long as the supply of non-immunes continues.

I would state, then, that for the most favorable development of yellow fever three things are essential: (1) a hot climate all the year around; (2) an abundant supply of fresh water stored near human habitations, and (3) a steady influx of foreigners who have not had the disease.

Let us take a few localities in which yellow fever has prevailed as illustrative of this view. Philadelphia has suffered many times, and severely, from yellow fever. At the period at which that city suffered from this disease only two of the elements favorable to its spread were present, namely, a large number of non-immune, and an abundant supply of well- and rain-water. Philadelphia is north of the natural habitat of the stegomyia mosquito, and it is found there only when introduced during the warm summer weather by shipping from the South. The cold winters destroy all yellow fever mosquitoes that survive the summer. The change from sailing to steam vessels has greatly decreased the number of times that stegomyia are introduced every summer into Philadelphia, and the introduction of a piped water supply has decreased their ability to find breeding-places when introduced. Philadelphia, therefore, has not suffered from yellow fever for fifty years, and probably would not again, even if we did not know that the mosquito transmitted the disease.

New Orleans is more favorably situated for yellow fever. It has two of the essentials for the maximum development—a steady influx of non-immune foreigners, and an abundant supply of rain water stored close to human habitations. But the element of climate is against yellow fever becoming endemic. While New Orleans is within the stegomyia belt, the winters are sufficiently cold to destroy most of these mosquitoes, and for this reason yellow fever has never become endemic there for any number of years.

In Havana, Cuba, we have all three of the elements favorable for yellow fever. It has a climate sufficiently

* Address delivered at Jefferson Medical College, June 7, 1909.

warm for the stegomyia mosquito to breed all the year around. While the winters are cool, the temperature is never low enough to frost, and, though the breeding of the yellow fever mosquito greatly decreases during January, February and March, in favorable localities they develop freely during these months. Rain water stored in and about the houses in barrels and cisterns was universal, and there was a large influx of Spanish immigrants and other foreigners. Consequently Havana was one of the principal centers of yellow fever. From 1760 to 1901 there was probably not a month in which yellow fever did not occur.

In Panama the three essential elements for the development of yellow fever exist in the highest degree of perfection. The climate is warm all the year around. There is no difference in thermometric conditions between summer and winter. Wells and cisterns were generally depended on for the water supply, but the principal dependence was in rain water stored in barrels and cisterns. As the dry season lasts four months, and scarcely any rain falls during this time, rain water had to be stored in large quantities. For four hundred years the supply of non-immunes has been constant. This, I think, is the reason that Panama has acquired its pre-eminent reputation as an unhealthful locality. Many other localities in tropical America are just as favorably situated as is the Isthmus of Panama in respect to the first two elements (temperature and water supply) for the development of yellow fever, but no other locality approaches it in the third element. For four hundred years there has never been any interruption to the steady stream of foreigners who have crossed the Isthmus. These were food for yellow fever, and kept the disease alive in Panama. From our knowledge of yellow fever, and what we have seen in Panama, I believe that yellow fever has always existed there from the first Spanish settlement. Years can be found when no yellow fever was reported, but whenever a new garrison arrived, or a considerable number of non-immunes came, enough people died of the disease to attract attention, and yellow fever was reported. For the first three hundred years of the occupation of the Isthmus the principal travel consisted of the officials and employés (military and religious) of the great Spanish vice-royalty on the west coast of South America. Many of these died in Panama, and, as now and then an official of high rank would die, Panama obtained an exceedingly bad reputation all over the Spanish world.

About 1849, and for many years after, the rush of gold seekers to California took place. These suffered severely, and still further added to the unfortunate reputation of the Isthmus among English-speaking nations.

From 1850 to 1855 the Panama Railroad was under construction. The considerable force engaged in this work suffered so severely from the disease that work had to be stopped several times. By the authorities, the unfavorable health conditions were looked on as the principal obstacles to be overcome. From 1883 to 1889 the French had a large working force working on the canal. These also suffered very severely from disease, and this was considered one of the chief elements in their failure. The French experience on the Isthmus settled the reputation of Panama as to health conditions.

When the United States took possession in 1904 the Isthmus was generally looked on as probably the most unhealthy locality known. This was due, as I have pointed out, not so much to local conditions, as to the fact that no other tropical city has had for the same length of time such a steady supply of non-immunes. Many other tropical cities are just as well adapted to the development of yellow fever as is Panama, as far as the first and second conditions (temperature and water supply) are concerned, but none have had for anything like so long a time the third condition, namely, a steady inflow of foreigners.

There are no means of giving figures as to the death rates on the Isthmus. Until our arrival no general records were kept. We can obtain some basis for comparison by taking the records of the French Company. They had an excellent hospital, Ancon, where employés of contractors were treated at a charge of a dollar per day. But the contractor did not send many of his negro employés there. It was cheaper for him to discharge them. The hospital soon became infected with yellow fever, and non-immunes admitted generally contracted this disease. So the hospital was not very popular among the non-immunes. Many of the French employés when sick preferred to remain at their homes in Panama and Colon.

The records of Ancon Hospital were very accurately kept and are very good. During the nine years of the prosecution of the work under the French, 1,041 patients died of yellow fever in that hospital. As the Jamaica negro is not susceptible to yellow fever, the figures apply to whites alone, who are mostly Frenchmen. These are the figures for Ancon Hospital alone. They do not include those who died all along the line of the canal and in the cities of Panama and Colon. Probably at least as many died out of hospital as in it, and, while this is, of course, an estimate, I think it a very conservative one. This would give 2,082 deaths from yellow fever among the white French employés. The French averaged 1,606 white employés on their rolls. This means that the French lost five-fourths of their force in nine years or eleven-sixteenths in five years.

We have now been at work on the Isthmus five years. Our average white force has been 6,449. If we had lost at the same rate as I estimate the French did, we should already have buried 4,433 white men from yellow fever alone. We have an average of 4,852 Americans, including employés, their wives and children. At this rate we should by this time have lost from yellow fever 3,333 Americans.

Taking the stories of the survivors of families and small parties who came to the Isthmus during the French construction and also our general knowledge of yellow fever, I think the losses were larger than the above figures show. The family of one of the chief engineers consisted of five; four died of yellow fever. The family of the superintendent of the railroad consisted of five; three of these died of yellow fever. A party of seventeen engineers came on one steamer; sixteen of these died of yellow fever. Twenty-four sisters of charity came to Ancon Hospital at one time; twenty of these died of yellow fever. So from our knowledge of the conditions as they existed on the Isthmus and our general knowledge of yellow fever, I think it quite reasonable to say that one-third of the Frenchmen who came to the Isthmus during the French construction died of this disease.

Now let us see if we can estimate what this number was, taking our data from still another source. To keep an average of 4,852 Americans on the Isthmus connected with the work, we have had to bring to the Isthmus 24,260. It was estimated by the Department of Labor, Quarters and Subsistence, when that depart-

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ment was in existence, that the white gold roll is changed approximately about once a year. Estimating for the French in the same way, it would have been necessary to bring to the Isthmus in five years 8,330 Frenchmen, in order to keep their force up to 1,606. One-third of this number would give 2,770 as the deaths due to yellow fever. Applying this same ratio to the 24,260 Americans brought to the Isthmus in the past five years, we should have lost by this time 8,087 from this disease.

Now let us take the total force. The French average during their nine years was 10,121. They had in Ancon Hospital 5,651 deaths. The French were building the canal at Panama just as the subway in New York City was built, so far as police control is concerned. If a laborer got sick and went to his home and died, they had no means of finding out what became of him, any more than has the contractor on the subway in New York City. The man was simply dropped from the rolls. If he died in the hospital, he was recorded as a death, but not otherwise. The whole French canal was under construction by contract, and a contractor was charged a dollar per day for each patient he kept in hospital. The general opinion is that a very small proportion of the sick laborers were sent in. My experience with contractors teaches me that very few patients would come to the hospital if the contractor were charged a dollar a day for their care. The British minister at Panama tells me that he thinks that it would be a large estimate to say that one-fourth of the laborers who died, died in hospital. The present minister was there all during the construction days, and came in contact a great deal with the Jamaica negroes, who are British subjects and make up the bulk of the laboring force under the French. After giving the matter careful consideration, I think it fair to say that two men died out of hospital for every one who died in hospital. Estimating on this basis, and knowing that 5,651 died in hospital, we would have the total loss of 16,593. That is, the loss was eight-fifths of the average force.

The average American force for the past five years has been 26,532. Eight-fifths of this would be 42,449, which would be the number of deaths for nine years. For five years this would give us 23,580. I, therefore, make this claim for the sanitary work done on the Isthmus, that had not this work been done, we would have had the same losses as occurred under the French régimé.

At the end of the fifth year of work, this loss from yellow fever alone would have been, according to the French hospital figures, 3,463 Americans; according to my estimate, 8,087. The actual loss has been NINETEEN. At the end of five years from all causes and in the whole force, this loss would, according to my estimate, have been 23,850. Our actual loss has been 3,317.

The Card Index for Health of School Children.—The School Hygiene Association in France is making a valiant effort to have a system of card records adopted for each child. The card is to record the findings at each of the periodical visits of the medical school inspector, the physician merely noting that this or that organ or system of organs is defective, the weight or growth below standard, etc. The medical inspector does not state the nature or cause of the functional or organic disturbances he detects but merely notifies the parents that the child requires medical attention along certain lines, and that their family physician will diagnose the trouble and institute treatment. The card is the property of the scholar and is delivered to him as he leaves school, but is kept by the medical inspector in the meanwhile.

Original Articles

THE TREATMENT OF INFANTILE DIARRHEAS DUE TO INTESTINAL FERMENTATION WITH LACTIC ACID BACILLI*

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Modern classifications of the diarrheal diseases of infancy reject the term "summer diarrhea" as having no scientific foundation, since investigation has shown that the diarrheas occurring in the summer months present no etiologic, anatomic or clinical peculiarities distinguishing them from those occurring at other times of year. The only foundation for this term is the great frequency of these diseases during the hot months, the explanation of this frequency being the effect of hot weather both in lowering the infantile digestive powers and in increasing the opportunities for the contamination of food supplies. The term "summer diarrhea" is used here, therefore, only as a convenient name under which to group diarrheal diseases on which a series of investigations were made during the hot months.

The classification of the diarrheal diseases has been much discussed without final or definite agreement as to either its basis or its terminology. I believe that an etiologic basis is the only one in line with the most recent scientific advance. Under such a classification the diarrheal diseases fall naturally into four divisions, having as their fundamental etiologic factors: first, nervous influences; second, indigestion; third, bacterial fermentation, and, fourth, bacterial infection, respectively. The details of this classification have been sufficiently described elsewhere.

THE RÔLE OF BACTERIA

Some distinguished pediatrists have been unwilling to accept the distinction found in the last two divisions of this classification, contending that bacteria form but one etiologic factor, and that all diarrheal diseases caused by the action of bacteria should be designated as infectious. Nevertheless, into such a classification a certain amount of confusion in terminology at once enters, such terms as dysentery, ileocolitis, infectious diarrhea, fermental diarrhea, acute gastrointestinal intoxication, all referring to diarrheal diseases caused by bacteria, yet presenting various differences in their etiology, anatomic and clinical descriptions. The distinction between the conditions caused by true bacterial infection with parasites, which live in and on the tissues of the body, and those caused by bacterial fermentation with saprophytes, which live in and on the intestinal contents, I believe to be essential. Such a fundamental distinction removes much of the confusion. Under it the term infectious diarrhea may be selected to include all cases in which there is true infection with parasites, while the term fermental diarrhea, or acute intestinal indigestion of the fermentation type, may be selected to include all cases in which the fundamental etiologic factor is saprophytic fermentation. The term ileocolitis, like the term inflammation, is used, no longer as the name of a disease, but as a term describing the anatomic lesions found in a great variety of diseases, such as

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tuberculosis, typhoid and infectious diarrhea. The term dysentery may be used to describe any case of infectious diarrhea in which the *Bacillus dysenteriæ* is proved to be the infecting agent. The term acute gastrointestinal intoxication is a synonym for the fermental diarrhea. It has usually been employed to describe those cases in which symptoms from the absorption of toxins are particularly prominent.

This distinction between parasitic and saprophytic action of bacteria has the further advantage of being in line with modern effort in specific therapy. It is the infectious parasites which give rise to the formation in the body of specific immune bodies, and which, therefore, are to be combated by means of serotherapy and vaccine therapy, in which such great progress has recently been made. The saprophytes must be combated by other methods, and to present the results of the systematic investigation of one of these other methods is the purpose of the present paper. This method necessitates the recognition of the etiologic distinction suggested, and suggests the possibility, under proper fundamental etiologic distinctions, of in time arriving at the elaboration of a specific form of treatment for each of the various forms of diarrheal disease.

THE ANTAGONISMS OF BACTERIA

This method depends on the principle of the antagonism existing between various varieties of bacteria, as developed by Metchnikoff and his followers. It has been clearly shown that in many instances one variety of bacteria possesses the power of inhibiting the development of another, and recent literature is filled with experimental work placing the proof of this principle beyond question. It has been chiefly applied to combating fermentation in the intestine, and has been successfully applied in a great variety of diseases, particularly in chronic disturbances and in certain chronic joint conditions supposedly caused by the absorption of the toxic products of intestinal fermentation.

THE RESEARCHES OF TISSIER

My own investigations on the application of this principle to the diarrheal diseases of infancy were suggested by the work of Tissier at the Pasteur Institute in Paris.

The subject was approached by Tissier from the point of view of the organisms causing fermentation in the intestinal contents. While he does not draw a distinction between parasites in the tissues and saprophytes in the food residue, he makes no mention of organisms found in the tissues, of tissue changes, or of agglutinin formation in the blood, but does refer constantly to the chemical results of the fermentation of the intestinal contents. Moreover, the clinical type of case described by him is exactly that described in a recent classification adopted by the pediatric department of Harvard University as intestinal indigestion with fermentation, or fermental diarrhea.

Tissier made careful studies of the intestinal flora in health and in this disease, establishing characteristic bacterial pictures for each, and identifying the various micro-organisms. He finds that in health the *Bacillus bifidus* is the predominating organism of the dejecta in overwhelming predominance. In disease a bacterial transformation occurs, the *Bacillus bifidus* disappears and a number of abnormal forms appear. Tissier identified these organisms and studied them in detail, particularly their fermenting action on food elements and products. Among them he found only one variety which was pathogenic toward animals, and which attacked proteid substances and their derivatives. In doing this it forms a toxin, which has some necrotic power on the tissues. This organism is the *Bacillus perfringens*, a large rod with square ends, staining by Gram's method. In early stages it has a spore at one end; later no spores are seen. It is anaerobic, ferments sugar, and has the special peculiarity of causing solution of meat or white of egg in sealed tubes.

Tissier believes this organism to be the cause of the class of cases which we know as fermental diarrhea. The products of the fermentation caused by other organisms he regards as having a possible contributive action through irritation of the mucosa. As predisposing causes he believes that lack of digestive power and unsuitable chemical composition of the food play the chief rôles. The predominance of this disease in artificially fed infants may be attributed to the excess of proteid in cow's milk, causing more unutilized proteid to pass into the intestine. He further noted that in recovery a very rapid change occurred in the bacterial content of the discharges. The abnormal forms disappear, and the *Bacillus bifidus* reappears, at first in its bifurcated form, and quickly resumes its place as the preponderating microorganism. He found that in culture media containing a sufficiency of carbohydrate the *Bacillus bifidus* inhibits the growth of the *Bacillus perfringens*, but that in media without carbohydrates *B. perfringens* overcomes the *B. bifidus*.

Tissier concludes that the indications for treatment are to remove the fermenting intestinal contents by purgation and to cause a reappearance of the normal intestinal flora. The latter object can be furthered by diminishing the proteid and increasing the carbohydrate in the food, and can be more specifically attained by introducing into the intestine an organism tending to inhibit the growth of abnormal forms and to overcome them and cause their disappearance. In searching for a suitable organism for this latter purpose, he found that the *Bacillus bifidus* and the lactic acid bacillus both stop the development of *B. perfringens*, and he selected the latter, as it is more easily cultivated and handled than the former, which is anaerobic. He used this organism to effect a transformation of the intestinal flora.

In cases of fermental diarrhea, Tissier gave his patients pure cultures of the lactic acid bacillus, and under this treatment he noted a rapid transformation of the stools, subsidence of the symptoms and gain in weight.

This method of treatment struck me as being in the line of advance, as it is a specific treatment directed toward specific etiology, and based on scientific research. We are apt too long to neglect to apply in practice the knowledge given us from time to time by those engaged in scientific research. We had for a long time been accustomed to combating fermentation by purgatives, starvation, lavage of the colon, and regulation of the feeding. Intestinal antiseptics have not proved of value. Yet, although the fact that the growth of one organism inhibits that of another had long been known, it had not been applied in practice in cases of intestinal fermentation. It had never occurred to us to try to stop intestinal fermentation by introducing an inhibiting organism into the intestine—a procedure of very obvious possible value. This method of treatment as evolved by Tissier step by step to its logical conclusion proved very fascinating, and I determined to test it in practice.

Whether or not all Tissier's conclusions are justified does not affect the main issue. These processes may or

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may not be caused by the *Bacillus perfringens* or by other organisms. We do believe them to be caused by bacterial fermentation, and we are justified in introducing into the intestine any harmless organism that affords a hope of inhibiting the abnormal processes. The lactic acid bacillus is harmless. Tissier has shown that it inhibits the *Bacillus perfringens* in the test tube, and gives evidence that it effects a transformation of the flora in the intestine. Bienstock has shown that it prevents the putrefying action of the *Bacillus putrificus*. Therefore, it at least held forth a prospect of good results.

PRELIMINARY INVESTIGATION

I began my work on this subject in the autumn of 1905, confining my researches at this time to the bacterial examination of the dejecta in various types of diarrhea. This work was neither thorough nor complete, but the results, so far as they went, agreed with those published by Tissier.

In the beginning of the summer of 1906, I commenced a systematic investigation of the clinical results of this method of treatment in infantile diarrheal disease. This investigation I have continued ever since, whenever opportunity afforded, and am still engaged on it. My summer service in the out-patient department of the Infants' Hospital afforded a large material for this work, and I had the further advantage of Dr. Rotch's permission to carry on the work during his autumn service in the wards of the same hospital.

It occurred to me that buttermilk was made with lactic acid bacilli, and that an unpasteurized buttermilk should contain large numbers of this organism. Buttermilk had been widely advocated and employed in infant feeding, but, so far as I know, never on account of its bacterial content. It had been employed for chemical reasons, because its chemical composition was believed to be adapted to certain abnormalities of digestion and metabolism. In Europe it is invariably cooked before being given to infants, and in this country, so far as I know, had always been carefully sterilized or pasteurized. Consequently, none of the literature on buttermilk is of value as bearing on the question of the action of lactic acid bacilli in fermental diarrhea. Wurtz recommends it in cases of proteid and fat intolerance; von Rommel believes its acidity to be the active principle of its favorable action; Decherf believes it to be of wide value in gastroenteritis and rachitis, and prepares it by boiling with cane sugar. And there are many other recent articles on the great value of buttermilk as an infant food, usually in cases of chronic indigestion or atrophy. Other observers have not obtained such favorable results. It had been given a thorough trial, in a pasteurized form, in Boston, without notable favorable results. I believe that its favorable action is dependent on the proteid or fat intolerance so commonly observed, and have never seen a patient who did well on pasteurized buttermilk who did not also do well on proper milk modification.

I selected buttermilk as a convenient vehicle for giving lactic acid bacilli, in the first place, because it seemed to me that in that way, by combining medicine and food, I could introduce larger numbers of the organism than if I used small doses of bouillon cultures in addition to the food. In the second place, I wished to use a constant food in all my cases, and selected buttermilk as being a digestible food, not liable to produce accidental upsets from proteid or fat intolerance.

At this time I did not know, what later investigations have suggested as very probable, that the results depend on the particular strain of lactic acid bacillus employed. It was, therefore, more or less a matter of chance that an effective strain of the lactic acid bacillus was hit on in my preliminary work.

The buttermilk selected was first pasteurized to kill all other organisms, then inoculated with a pure culture of lactic acid bacilli, and ripened until the development of the organism had brought about the proper acidity and precipitation of the casein. The particular strain of lactic acid bacilli employed was isolated by Mr. S. C. Keith, bacteriologist with H. P. Hood & Sons, who selected it on account of the delicate aroma it produces.

I was unable to carry on proper bacteriologic investigations of the stools, confining myself to the study of the clinical results.

The results of the preliminary trial of this method of treatment were exceedingly striking. The unpasteurized buttermilk was first tried in 35 selected cases. Of these, there was evidence of a favorable result, as shown by a change in the character of the dejecta and by gain in weight, in 23. In 3 cases there was immediate cessation of diarrhea and favorable change in the character of the dejecta, without gain in weight. In 9 cases the lactic acid bacilli produced no effect.

CLINICAL PICTURE OF FERMENTAL DIARRHEA

Before describing the details of these results, it is perhaps necessary to describe the clinical picture presented in these cases in which the bacterial fermentation of saprophytes in the intestine is the principal etiologic factor. These cases are characterized by diarrhea, usually of sudden onset. The movements are loose, often very watery, are usually, but not always, green in color, have a foul or sour odor, and at times are frothy. Curds and mucus may or may not be present in addition. Blood is absent, and mucus is not extensive, except in cases of long standing. Very characteristic is the absence of persistent fever. The temperature may be high in the first twenty-four or forty-eight hours, but usually quickly falls after the diarrhea becomes thoroughly established; in very severe cases, or in long-standing cases, it is frequently subnormal. Vomiting is present in the majority of cases, and is often obstinate and severe. Colic may be present, but abdominal tenderness is almost invariably absent. There is rapid loss of weight. In severe, or long-standing cases, and in babies who have had repeated attacks, there is frequently an extreme degree of atrophy and inanition. In the severe cases are seen various toxic nervous manifestations, ranging all the way from slight apathy to convulsions and collapse.

In the majority of the cases the buttermilk was begun only after all ordinary and routine measures had failed. The work from the first was made as far as possible experimental. In the treatment of this disease there are always a certain number of cases which prove refractory, and which resist the employment of all the resources at our disposal. I endeavored, so far as possible, to select such cases for experiment with living lactic acid bacilli.

The routine employed in cases of fermental diarrhea was the following: The child was first given castor oil or calomel to empty the bowel, and nothing but boiled water was given for a period of twenty-four hours. Only barley water was given for a second twenty-four hours, and then feeding with a weak milk modification, usually fat 2, sugar 5, proteids 0.25, was begun. If there were no return of symptoms, the strength of the milk was gradually increased, beginning with an increase in the percentage of whey proteid only, such as fat 2,

sugar 5, whey proteid 0.90, caseinogen 0.25. Later the other elements were increased until a satisfactory gain in weight was maintained. If, however, the resumption of milk feeding was followed by a return of the symptoms, and further loss of weight, the same process was repeated, milk being this time withheld longer, at least seventy-two hours. Bismuth and irrigation of the colon were also tried, and milk feeding was finally resumed in the form of whey, to be gradually strengthened. If after this treatment the symptoms did not improve after a reasonable time, the strength of the milk was increased, as I have found that by so doing a certain number of cases will gain weight in spite of the persistence of the symptoms of fermentation. If this failed, the case came into the category of obstinate and resistant cases, and was usually treated by alternating in turn the percentages of the various elements, by cereal diluents, by peptonizing, or by resorting to a wet-nurse. It was such resistant cases which were selected for the experiment with living lactic acid bacilli. The immediate improvement, alteration in movements, and gain in weight seen in so large a number of such cases were consequently all the more striking.

The number of cases in this preliminary investigation, made so far as possible under conditions designed to be experimental, was thirty-five.

Not all of the 35 cases were of the fermental type; 5 cases were diagnosed as of the irritative type of acute intestinal indigestion, and were selected for trial merely for experimental purposes. None of these 5 showed improvement. Two of the cases in the series were of the infectious type, probably of dysenteric origin, characterized by persistent fever and bloody mucous stools. In both of them, also, the unpasteurized buttermilk failed to bring about any notable change.

Thus only 2 of the cases of total failure were frankly of the fermental type of disease, the type described by Tissier. Consequently, if the fermental cases alone be considered, the figures are as follows: Treatment successful, 23 cases; partly successful, 3 cases; failed, 2 cases. In the 23 successful cases, the use of the living lactic acid bacilli was followed, not only by cessation of diarrhea and the signs of fermentation in the dejecta, but by rapid gain in weight. In the 3 partly successful cases, the signs of intestinal fermentation rapidly disappeared, but there was no notable gain in weight while the patients continued under observation.

PROOF OF SPECIFIC ACTION

In order to be able to justify the conclusion that these favorable results were due to the action of the living lactic acid bacilli, it was necessary to obtain evidence that they were not due to the chemical qualities of the buttermilk as a food. Such evidence is particularly necessary in view of the many reports of the favorable action of buttermilk referred to above. To investigate this, in fourteen resistant cases of the fermental type, the buttermilk was first given in a pasteurized form, and after a sufficient trial had demonstrated a failure to cause improvement the pasteurization was simply omitted, no other change being made. In every one of the cases the omission of the pasteurization was followed by immediate improvement. When it is remembered that these were all cases in which, under routine treatment, the babies had failed to show improvement, and that they had also failed to show improvement when fed on pasteurized buttermilk, I think I am safe in concluding, in so far as conclusions may be drawn from mere clinical experience, that the favorable change was not due to the chemical peculiarities of the food used, but was due to the only new element added to the treatment, which was the introduction of large numbers of living lactic acid bacilli into the intestine through the omission of the pasteurization.

FINAL STATISTICS

So favorable were the results of the treatment that I determined no longer to confine its use to resistant cases, but to use it as a regular weapon in the treatment of diarrheal disease. I have used it in several hundred cases. Many of the babies were out-patients, and did not return to the hospital often enough to permit the completion of the records. I was able, however, to collect fairly complete records of 120 cases. In all of these cases the treatment was with some milk preparation ripened with lactic acid bacilli, without subsequent pasteurization. Not all the babies were treated with unpasteurized buttermilk, in which the fat is removed by churning after the ripening, but many were treated with various formulas of modified milk similarly ripened. The statistics of these cases are as follows: Treatment successful, 78 cases; partly successful, 12 cases; failed, 30 cases.

Not all of the one hundred and twenty cases were of the fermental type. Twelve cases were diagnosed as of the irritative type of disease, and these cases were selected for trial only because they proved resistant to the routine treatment, or because the condition of the child was so serious as to warrant trying whatever held out any promise of doing good. As the two types run into one another, the element of fermentation often being found in cases of the irritative type, I hoped that, in view of the remarkable results which I was obtaining in the frankly fermental cases, I might be able to do good in these resistant irritative forms. This hope was disappointed. Every one of the twelve cases of the irritative type in which the buttermilk was used is numbered among the failures. This result was all the more significant in contrast with the similarly resistant fermental cases, and is evidence in favor of the specificity of this method of treatment.

Eight of the cases in the series were of the infectious type, but were selected because there were evidences of fermentation in the intestinal contents, in addition to infection of the tissues. In 4 of these cases, the patients had failed to gain after the acute stage of the disease had subsided, but later the use of the living lactic acid bacilli was immediately followed by Tissier's so-called "transformation of the stools" and by gain in weight. In the other 4 infectious cases, no good result followed the use of the treatment.

Taking the frankly fermental cases, the figures are as follows: Treatment successful, 74 cases; partly successful, 12 cases; failed, 14 cases.

CLINICAL EFFECTS OF THE TREATMENT

The principal result of this treatment, when successful, is the bringing about of what Tissier calls a "transformation of the stools." The character of the dejecta changes, frequently in the most remarkable way, from loose, foul and green, to formed, pale yellow, with a sour odor. The typical lactic acid stool is of rather firm consistency, is light yellow, or white and putty-like, and has a rather agreeable sour odor. With the cessation of the diarrhea, the toxic symptoms disappear, vomiting ceases, and the child becomes happy and comfortable. At times the sour milk is vomited at first, but this rarely lasts more than one or two days. In the most successful cases, gain in weight is rapid.

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OCCASIONAL UNSUITABILITY OF RIPENED MILK AS FOOD

Not by any means in all of the successful cases were the babies able to gain weight on the ripened milk alone. In about 50 per cent. of the successful cases the children gained, for a time at least, while taking this food only. There were cases in which the use of the unpasteurized buttermilk was followed by immediate improvement in the symptoms and discharges, but in which a gain in weight did not follow. When, however, the buttermilk feeding was supplemented by alternate feedings of modified milk, steady gain in weight began at once. These cases suggested that, although the lactic acid bacilli had stopped the fermentation, the buttermilk was not adapted to the caloric needs of the child. When the buttermilk was supplemented with food of higher caloric value, the child gained weight. The lactic acid bacilli having prepared the way by causing a cessation of fermentation, the patient was able to thrive on a formula which in the first place it could not digest. In similar cases, the buttermilk was only continued until the alteration in the movements had occurred, and then the child was put back on the same food on which it had done badly before the use of the buttermilk. In such cases, after the buttermilk had been used, the patient gained weight. Thus the ripened milk was used only as a medicine against the fermentation, to be omitted when it had accomplished its work. In some cases in which unpasteurized buttermilk was used, in which there was no gain in weight, the food appeared, not so much of deficient caloric value, but rather as an irritant, causing gastric or intestinal indigestion. In these cases, it was similarly used merely as a temporary weapon against the saprophytic fermentation.

USE OF BOUILLON CULTURES

In four cases of this type, in which ripened milk could not be digested, the method of giving pure bouillon cultures of lactic acid bacilli was employed, as originally advocated by Tissier. In all four of these cases there was the characteristic change in the dejecta, but in only one of them was there subsequent gain in weight. I think this method of treatment is to be recommended in those cases in which ripened milk causes serious symptoms of indigestion.

RIPENING OF MODIFIED MILK MIXTURES

The fact that buttermilk as a food is not always adapted to the digestive and caloric needs of individual infants suggested the possibility of another method of employing living lactic acid bacilli in the treatment of this class of cases. A certain amount of fat in the food may be necessary for a particular infant, on account of the high caloric value of this food element, and the existence of this fermental diarrhea does not imply the existence of fat intolerance. On the other hand, the high proteid content of buttermilk may cause indigestion in babies of special susceptibility to proteid. If it is possible to grow lactic acid bacilli in buttermilk, it is also possible to grow them in other percentage modifications. We can thus combine the two indications for treatment by giving the food suited to the digestive and nutritive requirements of the infant and by stopping fermentation; and can also combine the resource of living lactic acid bacilli with the wide range of resources afforded by percentage feeding, by ordering the various mixtures which we believe adapted to the need of individual cases to be ripened with lactic acid bacilli.

With this end in view, I arranged with the Walker-Gordon Laboratory that on order they would inoculate and ripen any percentage formula with lactic acid bacilli. Under this arrangement the physician only has to select the formula which he believes to be most favorable for the individual case and write a prescription to the laboratory, as, for example: fat 2, sugar 5, whey proteid 0.90; caseinogen 0.25, lime water 5, ripened with lactic acid bacilli.

This experiment has by no means proved to be a complete success. It soon appeared that the various modified milk formulas, when thus ripened, were not well digested. The fat in such formulas, after ripening, tended to separate out and float on the top of the bottle in the form of liquid butter. This is not a suitable food for these babies. In view of this, I soon found that I was obliged to confine my work to formulas containing no fat. Fat-free milk ripened with lactic acid bacilli was the food employed in the majority of the later cases in the series. When made from whole milk and undiluted, this food amounts to about the same thing as buttermilk, the difference being that in buttermilk the fat is removed by churning after the milk is ripened, and in the fat-free milk the fat is removed by centrifugalization before ripening. It is possible to vary the percentages of proteid and the milk sugar, and in this way the resources of percentage feeding may be in part employed in cases which present peculiarities of digestive power and requirements. Many patients, however, take the ripened fat-free milk undiluted without indigestion. In those cases in which this food is insufficient in caloric value, it may be alternated with a modified milk formula in which there is fat, or it may be used temporarily as a medicine only.

Later work conducted by Mr. Howe, of the Walker-Gordon Laboratory, has shown that if the milk is properly ripened, formulas may be used which contain fat as high as 1 per cent. without the fat separating out. I have as yet had no clinical experience in the use of such formulas.

VARIATIONS IN THE EFFECTS OF DIFFERENT STRAINS OF LACTIC ACID BACILLI

Metchnikoff and other foreign investigators have pointed out that the lactic acid bacillus as a species is subdivided into many different strains which are not all of equal value in combating fermentation and putrefaction. I have been able in part to confirm this observation as applied to intestinal fermentation in infants. I have found that strains of lactic acid bacillus isolated from other sources did not appear always to give such good results as the strain of which I originally hit on by chance. My figures are too few to afford absolute proof of this fact, but I think it very probable that in the use of living lactic acid bacilli to combat fermentation it is necessary to select a strain of good or proved value. I think that some of the failures which have been reported from this method of treatment may possibly be due to the fact that different strains have been employed. For instance, I have found during the last summer that Hood's buttermilk, when given unpasteurized, did not produce such good results as it had in previous summers, nor did it in general give such good results as the ripened fat-free milk prepared at the Walker-Gordon Laboratory from the original strain. I do not know whether the strain of the lactic acid bacilli now employed in Hood's Laboratory is the same as that employed in previous years, but I do know that there have been changes in their laboratory, and that Mr. Keith is no longer their bacteriologist. Recently we have received in Boston from Bulgaria Metchnikoff's own

strain of the lactic acid bacilli, which has proved of value in combating fermentation. During the coming summer there will be a sort of contest between the home product and the importation from Bulgaria to determine which is the more effective.

THE USE OF THE LACTIC ACID BACILLUS IN PRACTICE

In practice, when it is desired to employ this treatment of living lactic acid bacilli, the physician may use buttermilk from some dairy, giving it unpasteurized, or he may prepare his own ripened milk with a culture of the lactic acid bacillus obtained from the nearest dairy. The objection to obtaining the bacillus in this way is that it is a matter of chance whether or not an efficient strain of the organism is hit on. It is possible that the buttermilk, or culture, so obtained, may be of the highest efficiency, and, on the other hand, it is possible that it may have but little power against saprophytic fermentation. It is better to obtain a culture of proved value for use in those places where laboratory feeding is available; the culture may be kept in the milk laboratory, and the ripened milk may be ordered from there. When laboratory feeding is not available, or is not desired, the physician may prepare his own ripened milk in the following manner: He should first send for a bouillon culture of an efficient strain of the organism. Such strains may now be had certainly at the Walker-Gordon Laboratory in Boston, and possibly at other places. The cream is removed as far as possible from the milk, and then the skimmed milk is inoculated with the lactic acid culture. The inoculated milk is then kept in a warm place until enough acidity develops to sour the milk or to produce a very fine curd, when the milk is set aside and kept on ice for use. Some of this milk is set aside each day, to be used as a culture for inoculating the next day's supply, and in this way the strain of lactic acid bacillus may be perpetuated indefinitely, as it apparently has the property of killing out accidental contaminating organisms. The artificial tablets of the lactic acid bacillus, such as the lactone tablets and similar products, make excellent buttermilk for mere feeding purposes, but are not advisable when the purpose is to give as many as possible of the living bacilli.

INDICATIONS FOR AND LIMITATIONS OF THE USE OF LIVING LACTIC ACID BACILLI

The results of my investigation on the action of living lactic acid bacilli have led me to conclude that it is of great value in the class of infantile diarrheas designated as fermental. The numerous variations in the series show that it is not absolutely a specific treatment. It is possible that these failures may be attributed to the fact that the particular strain of lactic acid bacillus used is not effective against the particular strain of fermenting organisms concerned. It is probable that there are also many other elements tending toward failure of which we know nothing. I believe, however, that this treatment is an extremely valuable resource, and one which is applicable to a very difficult class of cases. I believe that it should be tried in every case of infantile diarrhea characterized by saphrophytic fermentation, and in every case of chronic intestinal indigestion and atrophy in which the movements are characterized by evidences of fermentation. I believe a ripened milk containing living bacilli to be the best food with which to begin feeding in cases of fermental diarrhea after the initial period of starvation.

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ABSTRACT OF DISCUSSION

DR. J. P. CROZER GRIFFITH, Philadelphia: I have no doubt that Dr. Dunn has employed the best milk in his preparation, but in country districts, where it is not possible to obtain the cleanliness desired, would he feel justified in trusting that the growth of lactic acid bacteria would do away with the necessity of pasteurizing? I am a great believer in the use of buttermilk, but I have always heated it after it has been made. What, too, in the ordinary nomenclature, would Dr. Dunn call this lactic acid germ? There are many different germs, various in name, which are capable of producing lactic acid.

DR. ELIAS H. BARTLEY, Brooklyn: There are about twenty-five or more different kinds of lactic-acid-producing bacilli. What particular one does Dr. Dunn consider the best? I have had failures and I can readily understand from the statements made that some lactic-acid bacilli are satisfactory and that others are absolutely worthless. For the treatment of this fermentative diarrhea we must have a suitable strain. This being the case, it is important that we know what strain to select or where we can get it. I think Dr. Dunn was exceedingly fortunate, as he says, in happening to hit on a satisfactory strain in his experiments. That might happen to any one of us, but the accident is much more likely to be in the other direction of getting a wrong strain. It seems to me that the value of the paper lies in reducing what has been a haphazard practice to a scientific one. Has Dr. Dunn had any difficulty in getting children to take the ripened milk? I have had that difficulty in feeding children on buttermilk. Babies do not seem to like it and after a few days refuse to take it. Again, Dr. Dunn says that in some cases the children were not improved and in some cases they were even made worse. Could he determine beforehand which cases were suitable for this treatment and which were unsuitable?

DR. THOMAS MORGAN ROTCH, Boston: From time to time great advances are made in the milk laboratories in just such questions as this. One of the latest laboratory discoveries is how to make the curdled milk fine enough to go through the nipple, which is the most practical point. These are not infectious cases but are due to the action of the saprophytes. They are simply fermentative forms of diarrhea, but there is no true infection in the cases in which the lactic-acid bacillus is an important factor in their relief. Now as to the separation of the strain; two years ago in Stockholm, I met Professor McGee, the most prominent Scandinavian physician. They have made great advances there in the use of buttermilk and Dr. McGee said that they had the very best buttermilk in the world; but he had found that some years it would act satisfactorily and another summer it would not. Dr. McGee came over here to see what Dr. Dunn was doing and he has taken back with him some of this strain with which Dr. Dunn has been working. We do know that this strain which Dr. Dunn has differentiated is the most satisfactory obtainable. The fact that a physician does not have success with the treatment does not prove that the method is a failure because, in the first place, he must have the especial type of case to treat and then he must have the especial strain of bacillus for the treatment.

DR. JOHN LOVETT MORSE, Boston: I wish to call attention to a paper read before the American Pediatric Society in 1905 by Dr. H. T. Bowditch and myself, the title being "Certified Milk in Infant Feeding." In it, many of the points brought out to-day were covered. I am sorry to disagree with my colleagues. I have, however, treated the babies in the same hospital with the same buttermilk, with skim milk "ripened" with the same strain of the lactic-acid bacillus and with mixtures ripened with the same strain and have not obtained the same results as did Dr. Dunn. My experience is that the results from buttermilk and from milk mixtures "ripened" with the lactic-acid bacillus are no better than those obtained from other milk mixtures of the same chemical composition. The results are the same whether the buttermilk is pasteurized or not. In a certain number of cases, however, the results are striking. In these cases they are probably due to the change in the bacterial flora. If the lactic-acid bacilli have this favorable action in suitable cases, they should have just as unfavor-

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able an action in unsuitable cases. At present I doubt if we are able clinically to determine in advance what children will be helped and what injured by this treatment. It seems to me, therefore, that until we have some method for the rapid bacteriologic examination of the stools we certainly can not use this method of treatment intelligently and perhaps not even safely.

DR. FRANK P. GENGENBACH, Denver: I had the pleasure of spending nearly a year in Finkelstein and Heubner's clinics in Berlin, and they feel that the feeding of buttermilk derives its value from its chemical composition and the low fat percentage, and they also believe that the diarrhea is due simply to indigestion and not to the bacteria and that when you remedy the indigestion by a starvation process and then build up the nutrition you have met the indications. They have secured the same results by the use of pasteurized buttermilk that Dr. Dunn has obtained from the use of non-pasteurized buttermilk.

DR. T. M. ROTCH, Boston: There is no question but that after a baby has had an attack of this condition that we suppose is due to the saprophytes, the intestine becomes so vulnerable to irritation that other organisms will take hold very readily. After a child has been infected one can still go on with the lactic-acid bacillus and though one can not get at the organisms that have gotten into the tissues, at least it is better to continue the lactic acid, thus taking care of the saprophytes that are present in the intestinal tract and at the same time supporting the child thereby.

DR. LEGRAND KERR, Brooklyn: What was the longest time that any particular infant was fed on these mixtures? Following the time that the child was fed on these mixtures was there any subsequent disturbance?

DR. C. H. DUNN: I did not go into all the different statistics as to the names of the various strains of this bacillus. There is an immense number of strains. Each dairy has its own strain which it selects on account of the aroma it imparts to the butter. I tested the strains from a number of dairies until I got a strain that had the particular action desired. This strain has not yet been given a name. Another satisfactory strain is the Bulgarian. There are doubtless other good strains. In reply to Dr. Griffith, I would certainly not rely on the bacilli to counteract unclean milk. In every case milk is very carefully pasteurized to clear it of other organisms and it is then ripened. Two things are involved in the treatment of fermentative diarrhea, one being the removal of the fermentation and the other the feeding of the baby. In order to meet the last condition it is absolutely necessary to take into consideration the baby's peculiarities of digestive powers and requirements. These two things must go together to get success. I know that many physicians have believed that babies could be put on a fat-free food and kept on it indefinitely, but I have seen cases in which a baby with this form of diarrhea was kept on this food for one day and then was put back on its regular food and got along well. This is a suitable method of treatment in those cases showing symptoms of autointoxication when there are green stools, etc. Cases characterized only by undigested food in the stools are not suitable for this method. Only those babies having greenish, loose stools should be put on this treatment. The very title of Dr. Morse's paper, "Acidified Milk in Infant Feeding," shows that he does not quite grasp what I mean. The feeding in these cases must be distinguished from the specific treatment of the fermentation. When one speaks of buttermilk in infant feeding it is an entirely different matter. I am perfectly willing to grant the value of buttermilk feeding in cases of fat intolerance. In these cases pasteurized or non-pasteurized buttermilk has proved of great value, but this has nothing to do with the specific action of the lactic-acid bacillus. I believe you will find that giving a bouillon culture of a good strain in suitable cases will give as good results as buttermilk. It is not a question of buttermilk or fat-free milk, for that is a question of the digestive powers of the child. This is merely a question of fermentation. There is no question but that in those fourteen cases the moment the pasteurization was omitted, no other step being taken, the movements changed to normal, the patients began to gain in weight and all symptoms subsided. I do not see how there could be a greater proof that this favorable result was due to the action of the living lactic-acid bacillus. I am talking merely of acute toxic cases due to saprophytic action. I have had other patients who could be fed nothing but acidified milk, but those were not cases in which the action of the lactic-acid bacillus was required, and the good result was due to the need of an acidified diet.

ADENOID HYPERTROPHY DURING THE FIRST YEAR OF LIFE AND ITS TREATMENT *

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Although a great deal has been written concerning adenoids in children, so that competent practitioners readily diagnose them and have them removed, little attention has been paid to these growths in early infancy. In New York at least a very considerable proportion of infants have adenoids that require removal during the first year.

Adenoids, if they are to be removed at all, should be removed as soon as they produce symptoms, and especially during the first year of life, for it must be remembered that children with lymphatic hyperplasia have one of the indications of lymphatic constitution and may not be good subjects for anesthesia, while adenoids may be removed during the first year without anesthesia.

Attention should be directed to this abnormality of early infancy, as the persistence of this trouble interferes with the proper development of the child, by reflex action, by the irritation produced by its presence and by the obstruction it causes.

The postnasal pharynx at birth is a space only ¼ inch high by ⅛ inch wide so that a slight adenoid hypertrophy at this period will cause obstruction. By the end of the first year this space has increased to nearly double this size.

Adenoid hypertrophy often produces symptoms during the first days of life, that is, the mother states that the child has had snuffles from birth. Cases of this sort are sometimes diagnosticated as syphilis, but the other characteristics of syphilis at this period are lacking. A case of this sort in which the patient was receiving specific treatment came under my observation during the past winter. Becoming convinced that the symptoms were due to adenoid hypertrophy and not to specific disease, the specific treatment was discontinued and the child carefully watched for other symptoms, but nothing more developed that might be interpreted as an evidence of syphilis.

The snuffles are particularly evident when the child is nursing and may occur during sleep if the child's mouth is kept closed. If the mouth is kept open snoring replaces the snuffles.

Snuffles result from an adenoid which produces irritation, and if it becomes large enough to obstruct the postnasal pharynx we have the further symptom of mouth-breathing.

Mouth-breathing, like snuffles, may be due to other causes than adenoid hypertrophy, but most of the cases of nasal obstruction during the first year are due to adenoid hypertrophy.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

A third indication of this condition during the first year is the presence of recurrent colds. These colds have the character of a cold in the head, there being some nasal discharge and fever, and they are accompanied sometimes by a pharyngitis. These recurrent colds during the first year are usually caused by adenoid hypertrophy.

A most characteristic sign of this condition is the cough. This cough is usually of a persistent character, often without any indication in the pharynx or bronchi to account for it. In some cases it is paroxysmal and may simulate closely the paroxysms of whooping cough. A case occurred in my hospital work during the past winter. A baby of six months, weighing 10½ pounds, was presented by the house physician as affected with whooping cough. The child was very anemic and in a desperate condition, vomiting apparently practically all its nourishment and coughing continuously day and night. The removal of the adenoid in this case stopped immediately both the cough and the vomiting.

A fifth symptom of adenoids during the first year is otitis media, a complication which may produce dangerous results. One only or all of these symptoms may be present.

The determination of the presence of an adenoid in a very young infant is not as readily made on account of the very small space in the postnasal pharynx. In making this examination, as in all examinations of young children, rapid manipulation avoids resistance and disturbance.

In order to make an adenoid examination have the child held with its head against the left shoulder of the nurse, the right arm of the nurse holding the hands and her left hand holding the forehead. Then if the left thumb of the examiner is pressed against the right cheek of the child so as to bring the buccal mucous membrane between the gums, the ends of the fingers of the left hand grasping the right side of the lower jaw, a firm grip is obtained which makes it impossible for a child with teeth to bite the examiner. The right index-finger is used for passing through the mouth into the postnasal space, or, if this is too small to admit the index-finger, the little finger may be used. The rough surface of the adenoid is quickly detected by one accustomed to making this examination, which may often be completed so quickly that the child does not cry.

An acute adenoid enlargement due to a cold which was not preceded by adenoid symptoms may occasionally disappear on hygienic treatment without medicine or with the syrup of iodid of iron, with or without cod-liver oil. For a chronic enlargement, however, only one method of treatment is available, and that is the removal of the adenoid by operation.

This operation in infancy can be done quickly without an anesthetic and with very little shock to the child and no lasting fright.

For the purpose of operation an assistant is necessary to hold the child, while a nurse should be present to assist and to remain awake by the child for two nights to watch for hemorrhage.

The child should be wrapped tightly in a sheet which binds the arms to the sides and should be held upright by the assistant with the back of the head of the child against the assistant's left shoulder, one of his arms pressing against the arms of the child, the other hand pressing its forehead back against the shoulder.

A gag is first introduced which is held by the nurse, while the operator, holding down the tongue, passes a Gottstein curette to the posterior nares, bringing the blade of the instrument as far up and as far forward as possible, then first by a backward followed by a downward stroke the adenoid may be removed in one piece.

In case it is not entirely free, forceps must be used. In most cases one use of this instrument is sufficient. The child's head is then thrown forward over a basin and the hemorrhage, if profuse, is checked by the application of cold to the face, cold water, ice-water, or ice. When the hemorrhage has ceased the child is put back in the previous position, the tongue depressed, the throat examined for particles that may have been incompletely severed and the finger introduced into the postnasal pharynx to be sure that the adenoid is completely removed.

The child is then put to bed without a pillow, lying on the side with the face forward, and the nurse is supplied with a spray containing 1 to 5000 adrenalin, to be used in case of hemorrhage, in which case the child should be placed with face upward and the adrenalin sprayed through the nose.

The shock of this operation is so slight that on a number of occasions the child has been asleep, having taken its bottle as usual, before the operator left the house.

Frequently it is desirable to operate when the child is still having some fever, this being often due to a cold to which the adenoid hypertrophy is contributing. I believe that a temperature of 100 to 101 may not be a contraindication of operation, as frequently such a temperature drops to normal after the operation and does not rise again.

In some cases, owing to the desire of the parents, an anesthetic must be given. It is well in such cases to mention the possibility of a lymphatic constitution and the danger of anesthesia in that case. If an anesthetic is used it should be nitrous oxid, and only sufficient should be used to produce primary anesthesia.

As to the results of this operation, a slight increase in the snuffles may be present for a few days; rarely is there any fever or evidence of pain, while the improvement in the symptoms and in the development of the child is always most satisfactory.

In conclusion, adenoid hypertrophy which causes persistent symptoms should be operated on as early as the fourth or fifth month of life; the operation should be done rapidly and without an anesthetic.

211 West Fifty-seventh Street.

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ABSTRACT OF DISCUSSION

DR. GEORGE L. RICHARDS, Fall River, Mass.: I have been considerably interested in this work, especially in children under 1 year of age, in whom there is difficulty in breathing at night. These children are nose breathers during the day but not at night, and in these cases the question of operating for adenoids comes up. Dr. Morse has written much on this subject and as a result of his teachings many of us watch for this condition in children who are referred to us far more than we did. In these young children it is hard to get the finger into the nasopharynx without injury and examination with the mirror is out of the question. In such cases, if the child is held before a good light, the tongue depressed and the palate lifted up with a palate retractor, a very good view of the pharynx can be obtained. The question of anesthesia or non-anesthesia is more or less a question of the desire of the parents. Very little anesthesia is required, but as a rule I find that the parents prefer even that little. The Gottstein curette is a good instrument, but it has one disadvantage, namely, the possibility of cutting too deep. The Shütz adenotome, and the new one devised by Dr. LaForce, of Iowa, give good results.

With either of these instruments the entire adenoid can be removed with one stroke of the blade and practically as painlessly as the ordinary examination. A small adenoid curette devised by Vogel is then used in each fossa of Rosenmüller to be sure that no adenoid is left in this situation. The one essential thing in the young child, on account of the danger of getting an infection of the Eustachian tube, is to do the operation in a good light and see the field of operation; not merely to operate by the sense of touch.

DR. HENRY L. COIT, Newark: I have generally expressed myself as opposed to operation on adenoids in children under 1 year, but Dr. Freeman's plan is reasonable and convincing. My chief objections to the operation are the danger to small infants of anesthetics, and the fact that they do not well bear the loss of blood. I would be sorry to see this matter turned over to the throat and nose men if they go after these little children as they do after some others who do not have adenoids. I recall one case of a child of 14 months who had a continuous temperature, and the physician made a diagnosis of tuberculosis due to hypertrophy in the nasopharynx. An operation was done and they did not get anything. I was called, and after disproving tuberculosis, found that the child had never been weaned and was taking nothing but milk with still 7 per cent. sugar. There were malodorous stools, and besides this the child had indulgent parents and grandparents. I felt sure that faulty feeding was the cause of its malnutrition and fever. It was not a difficult feeding case, but a case of easy feeding with difficult parents and grandparents. A trained nurse was ordered for the purpose of hypnotizing the parents and weaning the baby and there was no further trouble.

DR. JOHN LOVETT MORSE, Boston: The members of the section probably remember that I read a paper on this subject two years ago. I want to exphasize again the fact that the symptomatology of adenoids in infancy is not that of adenoids in childhood. The symptoms in infancy are snuffles, repeated "colds," irritating cough at night, difficulty in nursing and otitis media. I believe that adenoids should be removed whenever they cause symptoms, no matter how young the baby is. I have seen them cause symptoms in babies only a few weeks old. I do not operate myself, because I believe that the operation demands the skill of a specialist. I disagree entirely with Dr. Coit and think that the operation should be performed by a man who is in the habit of doing these operations. I do not find that the specialists are unduly anxious to operate; in fact, my difficulty in Boston is to find men who are willing to operate on these babies for me. They object to operating on young patients and it is very difficult to make them appreciate how much harm adenoids may do in infancy. It is not recognized how frequently otitis media in babies is due to adenoids. A baby may have repeated attacks although the adenoids are very small. In fact, it is possible to overlook them in these cases unless a very careful examination is made.

DR. FRANK S. CHURCHILL, Chicago: I do not think there is any danger of the throat and nose men operating too often. My experience also has been that they are afraid to operate on these babies. I have had difficulty in getting them to operate even when it is clearly shown that there are marked symptoms of adenoids. Unless there is something very urgent about adenoids or hypertrophied tonsils, I always like to have them operated on during the late spring or early summer, when the children will have time to recuperate before the winter. My experience has been that when operated on late in the fall the children are apt to have as many colds during the ensuing winter, or even more of them, than before the operation was done. It is hard to convince the nose and throat men of the fact because they do not see the children afterward. We do. That is a point on which I think the nose and throat men need education. As to a temperature of 100 of 101 F. being an indication for the removal of adenoids, I would want to be very sure as to what that temperature is due before having an operation done. I should want to watch the baby carefully for several days and make many cultures before subjecting it to an operation.

DR. D. J. M. MILLER, Atlantic City: I think that much of the odium that has fallen on this operation has been due to the fact that these patients have been so often subjected to an operation by some one not skilled in the work. I am much opposed to the general practitioner performing such an operation. When these symptoms occur in very young babies, it seems to me that the milder cases can be cured without operative interference by the continued use of a weak solution of iodin in glycerin, and by the use of antiseptic sprays. I have seen babies recover entirely under this treatment.

DR. S. W. KELLEY, Cleveland: As has been said, whatever the physician may wish, the question of anesthesia is often decided by the parents. If it is left to me I do not use an anesthetic when operating on infants. For this I have sometimes been criticized as cruel. In other cases the parents positively will not allow the use of an anesthetic. In operating without anesthesia a sitting posture is to be preferred. As to the manner of holding the patient, instead of having a sheet wrapped tightly about the chest and the nurse holding the patient over the arms with one hand and with the other hand holding the head of the patient, I prefer to have the nurse seated, reaching around from behind, hold the patient by the wrists, one in each hand, the patient's arms being crossed in front; and have an assistant, standing behind, hold the child's head between his hands, at the same time retaining the gag in place, unless a Whitehead gag is used. I object to scraping and crushing instruments, and prefer a sharp curette or one of the forms of guillotine.

DR. W. D. LUDLUM, Brooklyn: One point barely referred to is the question of recurrence. In my judgment these babies operated on very early, even when the operation is thoroughly done, sometimes have recurrences, and that I think is the reason of the indisposition on the part of specialists to operate even up to 2 years of age.

DR. S. M. HAMILL, Philadelphia: I am not ordinarily ultraconservative, and in a general sense I agree with what Dr. Freeman has said. If I understood him correctly, he does not operate in every case of adenoids, but only in those cases in which there is some evidence of obstruction or some definite interference with health. Of course, when there is some indication, I approve of the operation, but the idea of operating in every case of adenoid swelling, which may be but temporary, or on every child with otitis media merely because one thinks there may be some slight enlargement of the pharyngeal tonsil, as has been advocated, I believe to be wrong. I agree that the symptomatology of adenoids in early life differs from that in older children, but these symptoms are frequently only temporary and will disappear without operation, and unless the indications are very definite, I do not approve of operation during the first year. I believe also that, aside from the child, we have no right to subject the parents to the shock of any operation on an infant, which may be of questionable value.

DR. R. G. FREEMAN, New York: As to temperature being a contraindication to operation, a persistent temperature of from 100 to 101 F., apparently due to the presence of the adenoid, is best eliminated by removing the adenoid. Recurrence of adenoids is due largely to the predisposition on the part of the child to produce adenoid tissue and not to defective operation, and it might well be questioned whether, if it were possible, it would be good policy to remove all adenoid tissue. It is, however, necessary to eliminate obstruction and irritation due to large adenoids.

Changes in the Hypophysis During Pregnancy.—Erdheim and Stumme have recently published an extensive monograph on this subject (G. Fischer, Jena), reporting research at Weichselbaum's Pathologic Institute at Vienna. The findings in 122 cases are classified. The hypophysis seems to increase in size and weight during pregnancies until it becomes permanently enlarged. The average weight in the multiparæ was 1.06 gm., with 0.81 gm. as the minimum, while the average for the primiparæ was 0.83 gm., with 0.65 gm. as the minimum. Some of the physical signs hitherto ascribed to the pregnancy are probably the result of this hypertrophy of the hypophysis, such as the swollen face, lips and hands sometimes observed toward the close of a pregnancy. A tendency to adenomatous hyperplasia was observed in fully 10 per cent. of the hypophyses examined.

SUPPURATIVE CONDITIONS IN THE JOINT REGIONS IN INFANTS AND YOUNG CHILDREN *

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Inflammations in and about the joints in children are interesting for several reasons. The anatomic diagnosis is very often puzzling. The point of invasion of the infecting germ is frequently impossible to discover; and, finally, the results of early treatment are surprisingly satisfactory, except in cases of general sepsis. In looking over the records of a large number of cases of inflammations in the region of the joints in patients under five years old, it is found that the cases fall naturally into certain groups to which it may be profitable to call attention. My topic does not include tuberculous arthritis, but it is important to keep in mind all the while the picture of tuberculous joint disease in order to mark the contrast to the conditions that will be mentioned. This is all the more necessary because the great body of physicians are prone to consider joint disease either as tuberculous, if chronic, or as rheumatic, if acute.

Rheumatism is so rare under two years that this diagnosis should be made in a young child only by exclusion of all other possible conditions. True, rheumatism does occur, both multiple and monarticular. When monarticular, and especially if involving the knee or hip, it makes one very anxious lest the condition be tuberculous. In fact, it is frequently mistaken for tuberculous joint disease. Inasmuch as rheumatism is so rarely a suppurative disease, I shall omit it from my discussion.

As those who see the conditions in their early stages, the members of this Section can do a great service in calling attention to other forms of joint involvement besides tuberculosis and rheumatism. With the acute suppurative conditions delay in treatment or treatment by fixation and rest, with or without traction, is apt to result disastrously.

SUSCEPTIBILITY TO JOINT INFECTIONS

The joints in infants and young children are very susceptible to all sorts of infections. The younger the child the more apt it is to have joint infection, and, moreover, the number of joints apt to be involved seems to be greater the younger the child. This susceptibility is undoubtedly due to the rapid growth taking place at the joint ends of the bones.

Any large joint may be involved but there is a proneness for the additional infection of the small joints of the wrist, hand and foot and sternoclavicular articulation.

Shortly after birth the infections most frequently met are those due to sepsis, and somewhat later, though still during the first few months, those due to the gonococcus. Both these infections are apt to be multiple. Between the first and fifth year the child may suffer from various types of infection of several or single joints. The infective agent may be the streptococcus, the staphylococcus, the pneumococcus, the typhoid bacillus, the influenza bacillus, and occasionally (with the hip joint) the colon bacillus. Children over five years old are much less apt to have suppurative conditions in the regions of the joints, and when they do occur the point of invasion can usually be determined. Joint disease in children over five is usually either tuberculous or rheumatic.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

TYPES OF INFECTION

The groups of cases which it seems important to emphasize are the following:

I. Arthritis due to the streptococcus, or to the staphylococcus or to mixed infection by these germs.

II. Arthritis due to the gonococcus.

III. Arthritis due to the pneumococcus.

IV. Arthritis due to the bacillus of influenza.

V. Cases of osteomyelitis, including periostitis and epiphysitis.

VI. Cases of deep cellulitis.

VII. Cases of perinephritic abscess, psoas abscess and ischiorectal abscess.

I shall relate very briefly a few typical cases of some of the groups.

GROUP I.—ARTHRITIS DUE TO STREPTOCOCCUS OR STAPHYLOCOCCUS OR BOTH

CASE 1.—*Purulent Arthritis of Shoulder Due to Streptococcus.*—T. R., 1½ years old, in Babies' Hospital from May 1 to May 20, 1903, had been a healthy baby; was nursed three days, then fed on condensed milk, rice water and soup; had chickenpox at 1 year. He had never walked; had no digestive disturbance; had purulent conjunctivitis at 9 months, lasting five weeks. He entered hospital with history of having had for three weeks a "sore shoulder." It was slightly swollen at first, growing steadily worse. The child was feverish at times. Physical examination showed the fontanel 1 inch in diameter and depressed. The child looked stupid. Heart and lungs were normal; abdomen flaccid; liver and spleen not enlarged; all superficial lymph nodes enlarged. The right shoulder joint was swollen and fluctuating but not red, though somewhat warm. Temperature was from 102 to 103. Aspiration drew thick, yellow pus, containing the streptococcus. Operation was done on May 4 under chloroform, incision being made into the joint. On the next day temperature was 102 F. at noon and the child was very restless. Being exposed to diphtheria he was given 500 units of antitoxin. On May 6 the temperature was under 100 and the wound was looking well. The child's weight on admission was 16 pounds, and on May 11, eight days later, was 17 pounds 4 ounces. On May 20 the weight was 17 pounds 8 ounces and the wound had entirely healed, joint motion being good.

CASE 2.—*Multiple Septic Arthritis Due to Streptococcus, Bronchopneumonia, Acute Pleurisy.*—A. S., 20 months old, was in Babies' Hospital from Oct. 25 to Oct. 29, 1904. The baby was taken acutely ill with fever, but without vomiting or diarrhea, three days before admission to the hospital. She became very fretful, crying out when touched; had also slight cough. Examination showed numerous dry friction rubs but no change in the breathing sounds. Behind were heard fine crackling rales. There was some dulness on right base. Respirations were 80 to the minute. The spleen was two fingers' breadth below, liver one finger's breadth below ribs. There were some enlargements of the joints of both extremities. The left wrist was swollen and hot, the left ankle and foot also. There was a fluctuating swelling, painful, hot and discolored on the inner side of the right arm at about its middle. The temperature was 103 to 105.8 F.; pulse, 160; respirations, 60 to 80; leucocytes, 9,000. The swelling of the left wrist and the left dorsum of the foot persisted and the right shoulder also became red and swollen. On October 28 the leucocytes were only 7,000. On October 29 the temperature was lower and the baby died at 10 p. m. Examination for gonococci was negative. Aspiration of shoulder joint showed streptococcus pus. Autopsy showed the lesions mentioned above and also an acute nephritis.

CASE 3.—*Mixed Staphylococcus and Streptococcus Arthritis of Knee.*—J. H., male, aged 20 months, was in the Babies' Hospital from Jan. 14 to Feb. 28, 1907. Four days previous to admission the child stopped walking and cried with pain in the feet. There was high fever and swelling in both legs below the knee. For two days the swelling was mostly in the left leg around the knee; great pain on motion. On admission the

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whole region of the left knee was red and swollen. Ice bags were applied. Temperature was 104. At operation on February 2 the knee joint was incised and 4 ounces of pus obtained. It showed staphylococci and streptococci. By February 28 the wounds were nearly well and motion of joint was good.

CASE 4.—*Streptococcus Arthritis of Shoulder and Hip.*—J. S., male, 7 months old, was admitted to the Babies' Hospital Nov. 27, 1908. Three weeks before admission the child had abscess on the right side of the neck. There was some general rigidity after that time and six days before admission the child was said to have had a convulsion. At this time it was noticed that the left thigh was larger than the right and there was some pain on motion. On admission the left shoulder joint was found to be swollen and tender and the shoulder was not moved. The left hip was likewise larger than the right and the thigh held flexed by spasm. No definite point of fluctuation was made out. The following day Dr. Hartley aspirated the left hip joint, obtaining turbid yellow fluid which showed staphylococci and later streptococci. Three days later a retropharyngeal abscess containing streptococci was opened. One week after admission 37,500,000 dead streptococci were given by hypodermic injection. The temperature ranged from 99 to 102 and the joints remained swollen. Two weeks later thin pus was drawn from the left gluteal region and showed streptococci. The following day an incision was made into the left gluteal region and a small quantity of light yellow fluid obtained. The joint was not incised. No operative treatment was attempted for the shoulder, but both joints healed completely.

GROUP II.—GONOCOCCUS ARTHRITIS

During the past five years I have seen two cases of gonococcus arthritis at the Vanderbilt Clinic, both being monarticular, and there have been nine cases at the Babies' Hospital, most of which I have seen. Seven of these Babies' Hospital cases occurred in the gonococcus epidemic at the hospital in 1903 and 1904, and were reported in detail by Dr. Kimball. The remaining two cases occurred in 1907, and there was not a single case in the intervening years.

A peculiar feature of these cases is that they occur almost exclusively in male infants without any urethritis or other discoverable entrance port. One of my cases at the Vanderbilt Clinic followed gonococcus ophthalmia. The baby was three weeks old and had had ophthalmia from birth. The right knee became swollen and tender on the tenth day. By the use of alcohol dressing the inflammation was allayed and the synovitis subsided.

Another feature is that there are usually several joints involved and that the tissues around the joint as well as the joint itself are implicated. Often the para-articular swelling is the greater and on cutting through these tissues there is a large amount of serum and pus obtained, while there may be little obtained from the joints. There is fever for two or three days before the joint swelling appears, ranging from 101 to 103.

A final characteristic is that the inflammation, even though purulent, yields readily to treatment; usually to such simple measures as 60 per cent. alcohol compresses or aluminum acetate and alcohol, equal parts. If these measures are not successful, simple incision into the joint is all that is needed. The joints heal quickly with no impairment of the function.

Of course, some of the cases prove fatal.

The histories of two cases will be given briefly:

CASE 5.—*Multiple Gonococcus Arthritis.*—C. J., male, aged 2¼ months, was in the Babies' Hospital from Jan. 25, 1907, to Feb. 18, 1907; died of bronchopneumonia. He was brought to the hospital on account of vomiting and cough. Twelve days after admission, i. e., on February 8, had temperature for two days up to 101 to 102.6. Then there appeared on the dorsum of the left foot above first metatarsophalangeal joint a tense swelling, with shiny skin. On the third day the temperature was 102 to 102.4, and the abscess was opened, ½ ounce of pus being evacuated from the joint. The next day temperature was 101 to 102.6 and the right ankle was swollen and tender but not fluctuating; the swelling seemed rather diffuse. By noon the second joint of the left forefinger was swollen and tense. Ice poultices were used. White blood cells were 13,100; temperature, 99 to 103.2. On the fifth day the metatarsal joint had closed. There was no fluctuating in the other three joints. The next day the ankle joint was much improved. On the eighth day the toe joint was again swollen and fluctuating so it was opened again, a small amount of thick yellow pus being obtained. This pus showed typical Gram-negative intracellular diplococci. Culture showed the same organisms. On the eleventh day the right sternoclavicular joint was swollen and the temperature went up to 104.8. The next day the baby developed a strip of bronchopneumonia and had a temperature up to 105, dying the following day.

CASE 6.—*Multiple Gonococcus Arthritis.*—E. v. E., 3 months old, male, was in Babies' Hospital from January 24 to March 16, 1907; admitted to hospital because he did not gain in weight and was vomiting. On February 11, just sixteen days after admission and two days after the case just mentioned developed, there appeared diffuse non-fluctuating swellings at the left ankle and at last joint of the right middle finger. The temperature had been elevated for two days from 100 to 103. White blood cells were 13,100. For the next four days no new joints were involved, but the temperature ranged between 99.8 and 102.6. On the fifth day the left elbow and wrist were swollen—a diffuse swelling seeming like a cellulitis or para-articular inflammation. On the seventh day aspiration but no pus. By the sixteenth day the temperature was about normal, and the joints remained swollen and tender. Sixty per cent. alcohol dressings were applied. On the twenty-fourth day diplococci were demonstrated in the thick green pus obtained from elbow and ankle; they were proved to be gonococci both by microscope and by culture. The patient was discharged with the joints still somewhat swollen, but not very tender.

GROUP III.—ARTHRITIS DUE TO PNEUMOCOCCUS

CASE 7.—*Arthritis of Shoulder (Probably Pneumococcus).*—H. F., male, 9 months old, was in the Babies' Hospital from March 14 to April 4, 1905; discharged cured. He had pneumonia in both lungs when 6 weeks old; was very sick for twelve days. For three months there was swelling of the shoulder joint. Just as the child was recovering from pneumonia the mother noticed that the shoulder was swollen, hot and red; it had been so ever since. There was irregular fever. The left shoulder joint was found to be swollen. The child did not move the arm, and, moreover, it could not be moved freely. There was slight fluctuation. The temperature ranged from 99 to 102.2. Aspiration of joint was made on March 21 and pus obtained, and the next day an incision was made into the joint and a large amount of pus was evacuated, most of which seemed to come from around the joint. By March 25 the temperature was normal and the leucocytes were 12,000. On April 4 the shoulder was healed.

CASE 8.—*Purulent Pneumococcus Arthritis of the Left Knee, Bronchopneumonia, Meningitis.*—A. McL., female, 8 months old, was in the Babies' Hospital from Nov. 21 to Dec. 10, 1903; discharged dead. The patient was apparently well until seven weeks before entering the hospital, when she had a typical bronchopneumonia on both sides. Recovery was satisfactory. A swelling of the left leg was present. When incised 2 ounces of pus which showed pneumococci was obtained. Following this there was considerable constipation. One week before entrance to the hospital there was vomiting of cerebral type. It was for meningeal symptoms that baby was admitted. The meningitis proved to be due to the pneumococcus as shown by examination of the cloudy fluid obtained by lumbar puncture. On admission the right knee was found enlarged and held flexed. The patella floated. Kernig's sign was absent on the right side; could not be tested for on the left because of rigidity of the knee. The symptoms while in hospital were those of acute meningitis.

GROUP IV.—ARTHRITIS DUE TO THE INFLUENZA BACILLUS

CASE 9.—*Multiple Arthritis and Meningitis Due to Bacillus of Influenza.*—In the spring of 1907, in consultation with Dr. F. S. Fielder, I saw a 12-months old patient who had had cough, fever and prostration with comparatively high temperature and, in addition, swelling of the metacarpophalangeal joints of the right hand. Later the left wrist became swollen, and the right hip and one of the vertebral joints. The child was sick for twelve days and died with no definite symptoms of meningitis. We had agreed on the diagnosis of grip, but no lumbar puncture had been made and no withdrawal of joint fluid. But a very careful necropsy was made by Dr. Welch of the Cornell Laboratory, and from all these joints, five in number, was obtained a pure culture of the influenza bacillus, absolutely no other organism being present. At the necropsy examination of the brain was made, and from the sulci was obtained pus of similar character to that found in the joints. Moreover, the germs found by careful culture were also only those of influenza. This baby had had simply signs of great prostration; no signs of meningitis at all. It may be that the baby had meningitis from the beginning, but it was a most striking case of influenza bacillus septicemia with terminal meningitis.

GROUP V.—OSTEOMYELITIS, INCLUDING PERIOSTITIS AND EPIPHYSITIS

CASE 10.—*Osteomyelitis of the Femur.*—M. A., 14 months old, was seen at Vanderbilt Clinic, Oct. 2, 1905; on October 2 was referred to Roosevelt Hospital. There was a history of some inflammation about the vulva six months previous, but there had been no vaginal discharge. For the previous week the left thigh had been swollen and recently had been increasing very rapidly in size. It was painful to the touch and was not used. There was no pain in the other leg nor in any other joints. The swelling of the left thigh was pear-shaped and involved the upper four-fifths. There was no fluctuation, but the thigh was very tender. There was general glandular enlargement. Temperature was 102.4. Operation evacuated pus which came from about the upper part of femur, not from joint.

CASE 11.—*Probable Periostitis.*—B. B., aged 13 months, was in the Babies' Hospital from Nov. 18 to Dec. 18, 1907; had periostitis of the thigh following a perirectal and scrotal abscess. Three weeks before entrance the left thigh became swollen near hip joint; swelling increased toward the knee. There was marked pain on motion and child did not move the thigh. The swelling of the left thigh was very hard and not movable; seemed connected with the bone. The skin was tense but not red or shiny. Passive motion of the thigh at hip joint was possible. Temperature varied from 100.2 to 100.6. Ichthyol ointment was used on the thigh. After a few days temperature became normal and the swelling of the thigh subsided. When the child was discharged one month from the time of admission the thigh was much smaller and the baby's condition was greatly improved. In this case it is not positive that the inflammation was suppurative. It is probable that it was a periostitis.

CASE 12.—*Probable Osteomyelitis of Epiphysis.*—J. F., male, aged 16 months, was in the Babies' Hospital from Aug. 13 to Aug. 20, 1906. Eight days after admission there was swelling on the lower part of the left leg. This swelling increased and prevented walking. Latterly there was redness and heat. The swelling was found to be over the lower end of the left fibula, most marked about the malleolus; but the redness extended below the ankle and to the back of the leg. There was fluctuation. The child would not bear his weight on the foot but passive motion at the ankle was possible. Two days after admission 1½ ounces of pus were evacuated through an incision made at the lower part of swelling. The connection with the bone was not made out. The child was discharged with the wound almost healed.

CASE 13.—*Osteomyelitis of Epiphysis.*—E. W., male, 17 months old, was in the Babies' Hospital from March 23 to April 4, 1907. At noon on the day preceding admission the child seemed feverish, complained of pain in the right leg and refused to walk. The right knee was swollen on the morning of admission and the child kept the knee flexible. On examination the right knee and the tissues below it were found much swollen, measuring nearly two inches more than the opposite leg. The skin was shiny and there was some redness. Temperature was 103.4. Next day white blood cells were found to be 28,400, and of these 80 per cent. were polynuclear. Notwithstanding ice poultices and hot poultices, the swelling increased and became more tense. Two days later thick, green pus was evacuated through incision on right knee. The pus did not come from the joint but from below the joint. At the time it was not made out whether the bone was affected, but four days later denuded bone could be felt deep in the wound, showing that the point of infection had been the shaft of the tibia.

GROUP VI.—CELLULITIS

CASE 14.—*Pneumococcus Abscess in Region of Knee.*—J. L., male, 7 months old, was admitted to the Babies' Hospital March 29, 1909. When 6 months old he began to have swelling about the right hip gradually extending toward the knee. He had always been well up to that time. About March 1 he was vaccinated and after that there was fever and the thigh became worse. Seven days before admission to the hospital the family physician aspirated fluid and then operated on the right thigh above the knee. On admission the patella was apparently floating, the knee swollen and held flexed. Pus was discharging from old wound above the knee. On the following day two openings were made into the abscess, one above and one below and to the inner side of the patella. The bone was not involved and the abscess seemed entirely superficial. Smear and blood from the wound showed pneumococci. Seven days after the first operation by Dr. Alfred S. Taylor the wound was reopened and an incision made into the external surface of the joint. A week later it was thought necessary to open the joint again, but an incision above the joint on the anterior aspect of the thigh obtained a large amount of pus. Culture from this showed pure staphylococci and no opening was found into the joint. The temperature after the operation ranged from 98 to 104, and so 50,000,000 dead streptococci were injected into the left arm on April 1. This was repeated on April 6, and on April 10 10 c.c. of Hiss's leucocyte extract was injected. On May 3 the left thigh was badly swollen and about 4 ounces of thick yellow pus were aspirated; 20 c.c. of normal horse serum were injected into the cavity. The culture from this pus showed short streptococci. From the time of the last operation the child improved very satisfactorily.

CASE 15.—*Streptococcus Abscess Around Left Hip Secondary to Infected Nevus on Face.*—E. H., female, 4 months old. When 3½ months old a small vein at the back of a nevus on the right cheek burst and there was a slight bloody discharge. After three days there were some small vesicles in this area which later discharged some pus. Next, the lymph nodes under the right jaw became swollen. The swelling was quite diffuse but subsided after a few days. At the same time it was noticed that the left leg was not moved but was kept flexed at the knee and the hip. The temperature ranged from 100.6 to 102 up to the day of my visit, when it ranged from 102 to 103.5. There was limitation of motion by muscular spasm and some enlargement of the left hip but no sure swelling of the joint. The baby was kept under observation, the thigh being immobilized in an aluminum acetate dressing. After two weeks the baby was operated on by Dr. William G. Erving of Washington, D. C. Aspiration of the abscess in the region of the left hip had shown a pure culture of streptococcus. The abscess when opened was found to be of considerable extent and had dissected out the trochanter and neck of the left femur, although the capsule of the joint seemed to be intact on exploration at that time. The abscess drained freely but did not heal until two months later. Meanwhile the baby's general condition gradually improved. The convalescence was uneventful save for suppuration of an infected lymph node below the right ear, which was the probable site of the original infection. One week after the healing of the wound in the thigh an x-ray examination showed apparent damage to the upper border of the acetabulum with slipping of the head upward out of the socket. Otherwise no bony damage was made out. From

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that time until the present, traction has been continued on the leg and passive movements are still carried on, so that while the capsule is still probably distended there is no measurable shortening. There is full rotation, full adduction, normal extension and 60 degrees of abduction; so that there is every reason to believe that the joint will be a good one. The baby's general condition is excellent. This report was received from Dr. Erving on May 29.

CASE 16.—*Deep Streptococcus Cellulitis Extending to the Bone.*—S. R., female, 14 months old, was in the Babies' Hospital January 15 to March 12, 1906; developed diphtheria and was discharged unimproved. She came into the hospital for pneumonia. Discharge from the nostrils showed influenza bacillus. Ten days after admission the patient developed swelling and redness of the right metatarsus. Temperature went up to 103 F. Three weeks after admission the patient developed swelling near the left knee joint, especially to the outer side of the patella. The patella did not float. Aspiration showed thick pus, pure streptococcus. On the following day this pus was evacuated by an incision to outer side of patella; the knee joint was not involved. Two weeks later there was swelling of the right shoulder in front, below and behind. Incision at angle of scapula evacuated several ounces of pus, which came not from shoulder joint but from around it. Cultures showed streptococci. At one place bare bone of the seventh rib could be felt. On account of the development of diphtheria the child was sent away; all the wounds were discharging; no joints involved.

CASE 17.—*Deep Cellulitis of Thigh Near Hip Joint.*—S. W., 5 weeks old, was in the Babies' Hospital from February 18 to March 14, 1906; discharged cured. The child had some gastro-intestinal disturbances from birth and stomatitis when ten days old. At 4 weeks a swelling was noticed in the left groin; this increased and became tender. It involved the inguinal glands and was at time of admission more marked on the outer side of the thigh. There was redness and fluctuation; the child did not move the leg; passive motion was painful. Temperature was 100.6. On the day after admission 4 ounces of thin pus were evacuated through an incision on the outer side of the thigh. There was pus in the tissues surrounding the bone but no communication with the joint. Cultures showed *Streptococcus b. evis.* The wound healed entirely in three weeks.

GROUP VII.—PERINEPHRITIC ABSCESS, ETC.

CASE 18.—*Perinephritic Abscess, Bronchopneumonia, Marasmus.*—H. D., 7 months old, was in the Babies' Hospital from Jan. 21 to Feb. 22, 1904. Death occurred from bronchopneumonia. The baby was brought to the hospital because it was wasting and crying all the time and had fever. On examination the abdomen was found enlarged, its superficial veins distended over the diaphragm. The liver was one inch below the ribs and the spleen just felt. Superficial lymph nodes were found slightly enlarged, particularly near the axillæ. The abdomen became more distended while in the hospital and began to point in back on the left side. Temperature ranged from 102 to 103.8. On January 30 the abscess was incised and about 1 ounce of pus removed. After the operation the temperature varied according to the freedom of the discharge. Finally the baby refused food and died in an attack of edema of the lungs.

DIAGNOSIS

In general the first point in diagnosis is to determine whether or not the inflammation involves the joint. This would rule out scurvy and syphilitic epiphysitis. It is difficult to say at the outset that the joint is not involved; even after operation the surgeon may at times be in doubt. Next the diagnosis should be made from tuberculosis and rheumatism. Deep cellulitis of the thigh, perinephritic abscess and ischiorectal abscess should be carefully distinguished from disease in the hip joint.

TREATMENT

It is remarkable that wet dressings of aluminum acetate or of 60 per cent. alcohol or of these lotions combined succeed in a surprising number of cases. If progress is not satisfactory, incision should be made at an early date. The operation need be simply an incision into the joint with evacuation and provision for thorough drainage. It is remarkable that such simple measures succeed so frequently not only in saving life, but in securing perfect functional results. Of course, when the bone is diseased, the infected focus should be thoroughly scraped out. Vaccine therapy, especially the use of streptococcus and staphylococcus vaccine, is often a very valuable aid.

CONCLUSIONS

1. Cases of arthritis and of what might be called "near-arthritis" are quite common in infants and young children.

2. In all cases a careful history of the infant from birth should be obtained. The inquiry should be directed particularly toward obtaining a history of umbilical infection, of early ophthalmia, of vaginitis, of pneumonia, typhoid and influenza.

3. The feeding history, especially the use of sterilized, carbohydrate, or proprietary foods, should be carefully scrutinized. An inspection of the gums may save an incision into the thigh. It goes without saying that the patient should be undressed entirely for examination. Men frequently fail in diagnosis, not because they do not know, but because they do not see the patient and do not make use of what they know.

4. The diagnosis of tuberculosis and rheumatism should be made by exclusion.

5. The earlier proper treatment is instituted the fewer the number of joints involved and the greater the chance of complete recovery of function.

110 East Sixty-second Street.

ABSTRACT OF DISCUSSION

DR. C. N. DOWD, New York: The symptoms of these joint infections and other infections in infants are often so similar that diagnosis is very difficult and the most skilful and astute practitioner may fall into the trap thus constructed. Two illustrative cases have recently come to my notice—in one a meta-pneumonic hip inflammation was believed to be due to intestinal disorder. The physician and the diet were changed and hard feeling was engendered which could not even be allayed after the hip abscess was opened and the baby had recovered. The second case presented a particularly unfortunate sequence of events. A child of 1½ years, previously well, awakened from his nap crying, and from that time was feverish and ill. The attending physician, unable to relieve him, called in a well-known pediatrist, who believed the trouble to be intestinal and advised accordingly. A little later another pediatrist was called and then an orthopedic surgeon and after a few more days a general surgeon. An *x*-ray picture was then taken, as the region of the right hip was evidently the place of maximum inflammation. This picture revealed no abnormality, but a large abscess was opened a few days later just above Poupart's ligament. Prompt healing followed and all seemed well for a time. A few months later, however, a limp was noticed and examination and another radiogram showed a really serious condition—an absence of the head and neck of the femur, which had been destroyed by the inflammation. This, of course, made a permanent and very disturbing deformity. These cases are cited to illustrate the difficulties of diagnosis and the possible seriousness of the disease and also to indicate our debt to Dr. La Fetra for calling our attention to so important a subject.

Value of Playgrounds.—The head of the schools of New York city says: "Public playgrounds have induced children to come to school whom we could not previously reach; they are a potent instrumentality for raising the health, mentality and morals of the community."—*Hygiene and Physical Education.*

PRIMARY HEMORRHAGIC GLAUCOMA, WITH PROBABLE SYMPATHETIC INFLAMMATION

A CLINICAL AND MICROSCOPIC STUDY OF A CASE *

MORTIMER FRANK, B.S., M.D.
CHICAGO

Pathologic investigations on hemorrhagic glaucoma have been reported in considerable number, but, owing to the peculiar combination of conditions, this case is of interest and we can, I think, make some useful deductions from it. It points out that a broad iridectomy freeing the filtration angle is not always a preventive of glaucoma, although iridectomy is the best method of treating acute glaucoma. It further indicates that diminished depth of the anterior chamber and narrowing or closure of the filtration angle are not absolutely essential for the production of glaucomatous symptoms, but that, perhaps, hypersecretion and changes in the character of the fluids of the eye impeding proper filtration are sometimes concerned in the onset of glaucoma.

History.—On the evening of Jan. 14, 1908, I was called to see M. R., a man aged 31, of Jewish extraction. The day before the patient went to Milwaukee on a business trip feeling as well as usual, never having had any severe illnesses or any previous eye trouble. Twenty-four hours prior to coming under observation he suffered with a sudden severe pain in the left eye and within two hours the globe was intensely injected and vision lowered so that he could barely make out his hand. After a long anxious night a well-known Milwaukee ophthalmologist was consulted in the morning, who told the patient to get back to Chicago as quickly as possible.

Examination.—The left eye presented all the cardinal symptoms of acute glaucoma. The globe was brick-red, the scleral vessels full and the cornea steamy with diminished sensibility. The anterior chamber was equal in depth to its fellow and contained about two minims of dark-colored blood. The pupil was fully dilated and immobile, with the characteristic glaucoma reflex. The tension was plus 3. An ophthalmoscopic examination was impossible, owing to the corneal haziness and cloudiness of the vitreous. The vision was reduced to counting fingers at two feet. To the temporal side of the globe there was a large subconjunctival hemorrhage extending to the limbus and at places in the vicinity the cornea appeared to be studded with minute hemorrhages. The field of vision was about normal. The pain in and about the eye was very severe. The fellow eye was absolutely quiet and normal in every detail; vision equaled 6/6 plus. A careful inquiry into the patient's previous history failed to ascertain any cause for the attack. His habits were the best; he drank and smoked only very moderately. There was no venereal history. It was evident that one had to deal with a case of primary glaucoma of the hemorrhagic type. As iridectomy was not advisable, the usual medical remedies, eserin (physostigmin), one grain to the ounce, combined with cocain, dionin (ethyl-morphin hydrochlorid) 5 per cent., leeches and hot fomentations had to be relied on.

January 15, 8:30 a. m.: The patient had a good night and was now free from pain; T + 3; cornea hazy; anterior chamber of normal depth; pupil widely dilated, but hyphema less marked.

January 15, 8:30 p. m.: Condition was the same, except that the blood in the anterior chamber has absorbed, and cornea clearing and sensitive. T + 3; vision equaled fingers at six feet. On careful repeated chemical analysis and microscopic examination the urine proved normal.

January 16, 8:30 a. m.: The pupil was still dilated, but tension slightly lower than the day before. Cornea was bright and vision equaled 3/60. Ophthalmoscopy was now attempted, but owing to the cloudiness of the vitreous, the details of the fundus were not sharply defined, although the disc could be seen and appeared hyperemic, swollen and the vessels full. The retina could not be studied.

January 16, 8:30 p. m.: Since noon the patient had had some pain; the cornea was again steamy and vision reduced to fingers at two feet. The field was good. Paracentesis of the cornea was advised and concurred in by Drs. Casey Wood and Thomas Faith. On account of the previous hyphema and the still present subconjunctival hemorrhage, iridectomy was advised against.

January 17, 8:30 a. m.: The patient's condition was the same. Under 10 per cent. cocain anesthesia, the anterior chamber was slowly emptied with a paracentesis needle, and immediately on the escape of the aqueous small rivulets of blood made their appearance on the iris. Tension was slightly lower than normal, and iris somewhat contracted. Physostigmin was instilled in both eyes and the eye which had been operated on was bandaged.

January 18, 8:30 a. m.: The bandage was removed. Anterior chamber reformed; cornea clear; pupil dilated ad maximum. T + 3, and vision equaled fingers at one foot. Hemorrhages were absorbed. A posterior sclerotomy was now made between the superior and external recti muscles under 10 per cent. cocain, and about 10 minims of a clear, straw-colored fluid escaped. The eye was very soft. Calcium chlorid in fifteen-grain doses was given every three hours, with a view of increasing the coagulability of the blood. In addition, nitroglycerin was given, 1/100 grain, four times a day.

January 19, 8:30 a. m.: T + 3. The eye was free from pain; the pupil fully dilated; the field good. The vision equaled fingers at one foot. Small hyphema present and the cornea was slightly hazy.

January 19, 2:30 p. m.: Hemorrhage disappeared. Dr. W. H. Wilder in consultation agreed with me in still holding out against an iridectomy. A combined paracentesis and posterior sclerotomy between the inferior and external recti muscles was made, under 10 per cent. cocain. Directly after the sclerotomy, bright red blood flowed into the lower part of the anterior chamber, appearing to come from the region of the iris root. The eye was very soft.

January 20, 8:30 a. m.: The bandage was removed. The cornea was clear; hemorrhage absorbed; pupil widely dilated; no pain.

January 21, 9 a. m.: The patient's condition was unchanged. The use of physostigmin, 3 grains to the ounce, was begun.

January 21, 2 p. m.: T + 3. The pupil was slightly contracted; now about 4 mm. in diameter; was still free from pain excepting after instillation of physostigmin. Blood pressure and coagulation time were taken by Dr. Adolph Gehrmann of the Columbus Laboratories, who found blood pressure 95 mm., pulse 80, coagulation time two to three minutes. The blood pressure was taken every day following for a week, and never went higher than 115 mm.

January 22, 8:30 a. m.: Condition was as noted yesterday afternoon.

January 23: The pupil about the same; tension slightly lower. Physostigmin was increased to 4 grains to the ounce.

January 24: Pupil was 4 mm., but there was a perceptible diminution in tension; cornea clearing.

January 25: The condition was unchanged.

January 26: The cornea was bright. The patient counted fingers at three feet; there was no change in tension from that last noted. Owing to the cloudiness of the vitreous, a view of the fundus could not be obtained.

January 29: The pupil was 2 mm.; tension + 1.

January 30: The tension was normal; field was taken (*Fig. 1*) and the eye transilluminated for a possible tumor, but found negative. The patient counted fingers at one foot.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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February 4: The eye was nearly white; the tension normal; vision, 6/60; the pupil 3 mm. in diameter. This condition remained until February 11, 1908.

February 12, 8:30 a. m.: At about 4:30 p. m., February 11, there was some pain in the eye, which continued during the night, but the patient attributed it to the use of physostigmin. Examination now showed a new atack. The cornea was steamy; tension + 2; pupil about 4 mm. in diameter; the anterior chamber of same depth as its fellow. Iridectomy was now advised as a last resort, and the patient made aware of the possible danger. Operation was done under 10 per cent. cocain anesthesia, and a broad iridectomy performed with a Landolt keratome without a mishap.

February 13, 2 p. m.: The patient had been very comfortable; was free from pain. The bandage was removed; the cornea was clear; the anterior chamber reformed. Tension was slightly subnormal. The pupil was 4 mm.

February 16: Tension was normal; the eye quiet; physostigmin was reduced to 1 grain to the ounce.

February 17: The condition was the same. With the ophthalmoscope numerous large clots were seen floating in the

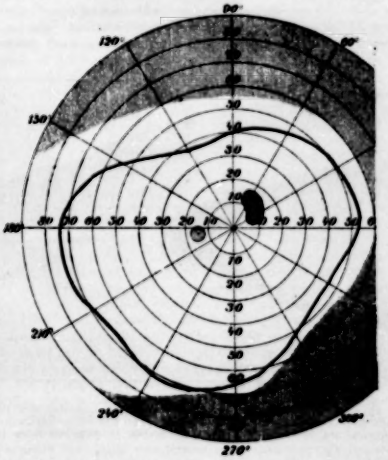

Fig. 1.—Field of vision for white (left eye), taken Jan. 30, 1908. Bright morning. Pupil 3 mm. in diameter. Disc, 1 cm.

vitreous, but nothing further could be distinguished; the patient was given syrup of hydriodic acid.

February 27: The condition was the same. The vitreous had cleared so that the location of the disc with vessels could be made out. The vision equaled 6/60.

March 1: I did not see the patient from February 27 until this day. Tension was normal, but there was a broken ring of pigment on the anterior capsule, and one corner of the nasal pillar of the coloboma adherent to capsule. Physostigmin was stopped.

March 11: There was no change in the eye until this day, when a dust-like exudate was found on Descemet's membrane. Tension was slightly above normal; cornea clear.

March 12: The patient had pain during the night. The cornea was steamy; tension + 2. The use of pilocarpin was begun.

March 13: Tension was normal. The cornea was clear; keratitis punctata well marked.

March 14: Up to this date the right eye had been absolutely free from any discomfort, but this day there was a fine ciliary injection, some lachrymation, and a feeling of discomfort. Tension was normal. On examination with a loupe, numerous fine dots were seen on Descemet's membrane, which stained deeply with fluorescin. Right eye vision equaled 6/5 minus. Accommodation was impaired. The disc was slightly hyperemic and the vitreous hazy. The left eye tension was normal. The vision equaled fingers at four feet. With these conditions, enucleation of the left eye was immediately advised and done under ether anesthesia.

March 14: Treatment was given, consisting of mercurial inunctions, pilocarpin sweats, sodium salicylate, dionin 5 per cent. in right eye.

March 28: Exudate was absorbing on Descemet's membrane; there were large masses of exudate in vitreous. The disc was slightly hyperemic. Tension was normal. Vision equaled 6/7. There was a large subconjunctival hemorrhage in stump of enucleated eye.

April 18, 1908: Right eye vision was 6/6 plus; a few very fine spots of exudate were still visible on Descemet's membrane, with the loupe. The vitreous opacities were smaller; eye accepted + 0.75 D sphere; vision equaled 6/6.

February 23, 1909: The external eye was normal; the vision equaled 6/5 —. Some vitreous opacities were still present and a few very fine dust-like opacities were still remaining on Descemet's membrane.

MICROSCOPIC REPORT

The eye was given to Dr. E. V. L. Brown for anatomic study, and he has submitted the following report:

"The specimen (Lab. No. 264) was fixed in formalin followed by Zenker's fluid, and was cut in an anterior and posterior half, the anterior half sectioned throughout the area of the coloboma and the posterior sectioned horizontally. Some 400 serial sections of each half were made and every fifth or tenth stained.

Fig. 2.—Anterior half of left eye as seen from behind (exact size).

"Seen from behind, the anterior half presented the appearance sketched in Figure 2; the lens is clear, the pars plicata and corona ciliaris are *in situ*, the processes and plicæ apparently normal and regular in arrangement. An accurate sketch of the position and extent of the operative coloboma area was made, because, clinically, a perfect and entirely effective iridectomy had been performed. No portion of the root of the iris could be seen behind the opaque corneoscleral limbus, either before or after the eye was taken out; yet, as shown in the sketch, the gross specimen shows that a good 0.5 mm. of the root of the iris had not been removed by the operation.

"*Microscopical Study.*—In a section through the center (section 205; see photomicrograph, Fig. 3) the curvature of the cornea and sclera are seen to be about the same. The cornea shows a tendency to collapse, and the center is slightly thinned to 0.5 mm. The epithelial layer is narrowed and elevated into empty vesicles in a number of sections; some of these (as section 110) have ruptured and left Bowman's membrane exposed. The outer cells are compressed and keratosed; the inner cell nuclei are thrown slightly forward or 'stilted'; many leucocytes are seen among the cells, especially in the upper portion of the cornea. Bowman's membrane is everywhere a trifle wider than normal and shows numerous delicate nerve canals as cross-striations. The body of the cornea is normal, although the very center takes a lighter eosin stain than usual. A narrow densely nucleated scar, corresponding to the site of the corneal section for the iridectomy, lies at the upper limbus; it commences just above the end of Bowman's membrane and runs obliquely from without, inward and downward at an angle of 45 degrees from the end of Bowman's membrane to a point 2.3 mm. central to the upper end of Descemet's membrane. Here at its inner

end the cut layers of the cornea gape slightly, so that the anterior chamber bays forward into the back part of the cornea. The defect has the form of a narrow wedge, and both lips are bordered by the curled-up ends of Descemet's membrane; the surface of the triangle is covered by a single layer of new endothelial cells directly continuous with those lining the anterior chamber. The anterior end of the scar grades off into a mass of proliferating endothelial and stroma cells just beneath the limbus epithelium. A closely knit matrix of new stroma cells has definitely healed together the anterior three-fourths of the wound. In more temporal sections (see section 185) the defect produced by the operation extends forward as a narrow sinus one-half the way to the surface of the cornea. But the lips of the wound anterior to the sinus are so firmly knit together that no 'filtration cicatrix' could have been present. In sections still more temporal (such as section 110) several well-filled vessels of small size are seen running through the scar and are surrounded by considerable numbers of round cells. In all sections through the scar the surface epithelium is normally reformed, but nowhere dips down into the wound tract; the final repair has been effected entirely by proliferation of the fixed corneal cells. The lower one-half of Descemet's endothelium is thinned and the cells in part disintegrated; many clumps of small round cells and pigment detritus are found on the posterior surface of the cornea; above that the iridectomy clinically was a very peripheric one; yet accurate measurement of the shortest portions of the stump shows that over 1 mm. of iris, measured from the circulus major to the cut end, is still present (section 143). As stated before, the angle does not show any accumulation of round cells or plastic material in any section; a heavy eosin stain does not bring out more fibrin or albuminous material than would be expected in aqueous reformed after evacuation. What fibrin is present is almost entirely in the lower half of the chamber and disposed along its walls.

"The sinus angle above is wider than that below; the cut end of the iris stump does not reach the equator of the lens anywhere and consequently the iris above has been displaced backward into a position that is even more nearly at right angles to the optic axis than in a normal eye. The iris below is thrown forward so as all but to touch the base of the cornea in many sections; indeed, some anterior root synechia to the back portion of the trabeculum corneosclerale has taken place in the sections which go through the angles just a little temporal to the iridectomy area; sections still more temporal are again perfectly free from any evidence of union between the periphery of the iris and the back part of the trabeculum corneosclerale. Both surfaces are perfectly smooth and sharply defined in all except a few peripheric sections (as, for instance, section 49) which show good-sized pigment masses.

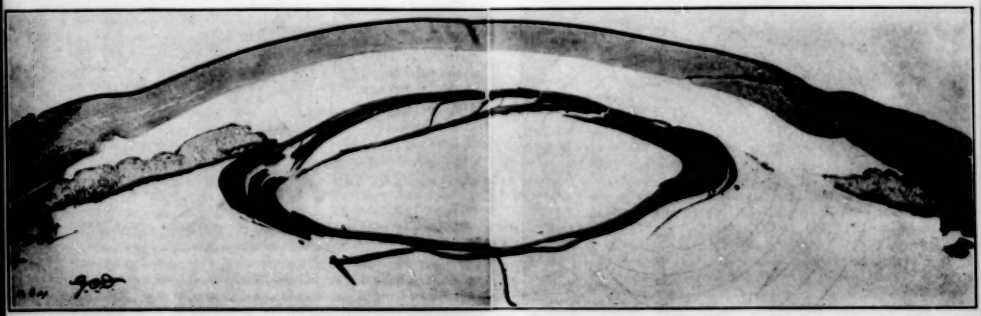

Fig. 3.—Section of left eye (photomicrograph, magnified 17 times). The upper limbus with the corneal incision and iridectomized iris lie to the right. One notes that: (1) The cornea is thinned; (2) the lens is thrown forward; (3) the chamber is shallow; (4) the sinus angles are open; (5) the trabeculum corneosclerale is infiltered on each side; (6) the canals of Schlemm are open; (7) pigment epithelium is detached from the iris pupil zone and adherent to the lens capsule; (8) the iris stump above is 1 mm. long.

some sections (Cf. section 110) showing as many as six clumps in the lower angle of the anterior chamber.

"The conformation of the anterior chamber and the sinus angles deserve special description. The entire lens system and iris body have been displaced forward, narrowing the chamber as a whole; indeed, the anterior pole of the lens rounds forward through the pupil to such an extent that the space between the anterior capsule and the cornea is reduced to two-thirds of a millimeter. The plane of the iris below is correspondingly thrown forward, and makes an angle of 25 degrees with the transverse axis of the eye in comparison with a normal angle of about 15 degrees. Yet the sinus angles are patent in all sections both above and below, and the fluids of the chamber have free access to the surface of the trabeculum corneosclerale; the angle above is reduced to a narrow slit but is free from cells. The iris below measures 3.23 mm. from the pupillary margin to the circulus major, whereas the iris above has been in a large part cut away by the iridectomy; the iridectomy extends from section 49 temporal to section 213 nasal; the columns are nearly parallel and nowhere in contact with the wound. The stump lies entirely behind and peripheric to the corneal portion of the corneoscleral limbus, corroborating the statement made

"The anterior half of the iris, trabeculum corneosclerale and canals of Schlemm are infiltrated with round cells; those in the iris are almost exclusively of the plasma cell type and only moderate in amount; the posterior layers of the iris do not show any considerable amount of cell increase; the stroma pigment cells are considerably disturbed toward the iris root both above and below. In most sections the infiltration about the canals of Schlemm is so dense or the cells so changed that only round heavy-staining nuclei are seen and the type of cell can not be made out. Despite this, the lumina of the canals are free and lined by a well-preserved endothelium in most sections and filled with blood in many; the position of the canals can always be readily made out. Further evidence of piastic inflammation of the iris is furnished by deposits of pigment detritus, clumps and short strips of pigmented cells on the anterior surface of the lens capsule. Their exact location and the relations to the pupil border of the iris are of great importance in any attempt to establish an order of pathogenesis in the findings.

"In the sections which go through the temporal (sections 60-120) or nasal (sections 144-205) portion of the lens capsule the pigmented cells lie in about the center of the portion of the capsule shown and these (vertical) sections go through two

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areas, each about 5 mm. wide, in the horizontal plane. The central sections (120-144) show no deposits on the center of the part of the lens capsule concerned, but do show deposits more toward the equator of the lens; these central sections go through a pupil area of about two-thirds of a millimeter in diameter. These evidences of posterior synechia, therefore, extend through an area 5 mm. in width and are absent through a zone of two-thirds of a millimeter corresponding to the size of a normal pupil. Furthermore, there was no actual posterior synechia present at the time the eye was removed, because no sections show adhesion betwen the iris and lens; the slight expanse of the iris below (only 3½ mm. overlap the lower equator of the lens for a millimeter in section 133) means that the pupil was well dilated at the last. One may conclude, therefore, that there was first formed a central posterior synechia in a zone corresponding to the position of the sphincter at a time when the pupil was small, and that this was later broken up by dilatation of the pupil and did not reform. These facts are in keeping with the clinical history.

"The ciliary body is markedly atrophic; the processes are all directed forward and much flattened down against the muscular portion of the body. The muscle has lost its triangular form and instead of a prominent angle on the inner anterior face, it presents a very flat curve extending forward from the region of the equator of the lens forward to the canal of Schlemm. No cell increase is found in any part of the ciliary body, and the stroma does not show any increase of connective tissue; a few of the processes are matted together at their bases; the apices are all free and there are no cells, fibrin or new tissue in the zonula ciliaris or anterior vitreous.

"The chorioidea is *in situ* and absolutely without any evidence of active or past inflammation, except where one of the sclerotomies was performed. Here the scleral wound is well healed externally, though gaping slightly internally; the cut ends of the chorioidea and retina are closely in apposition or slightly prolapsed in to the inner angle of the wound; the chorioidea shows round-cell infiltration for one-half to three-fourths of a millimeter only on each side of and in the wound and in a few sections only (section 289 and section 320); here the sclera is slightly ectatic. The chorioidea is not at all thickened by the process; the infiltration is never more than eight or ten cells in width from within outward; no epithelioid cells can be found; and the whole process apparently represents only normal wound healing after posterior sclerotomy. The retina in this area is atrophic and fused with the chorioidea into a dense atrophic scar permeated by broken-down pigment epithelium. Several *Drusen* bodies are found in the anterior part of one section, 380.

"Elsewhere the retina was detached in preparation and shows no evidence of inflammation aside from mantles of round cells about some vessels; it is markedly thinned. The vitreous is slightly shrunken in bulk, but otherwise quite normal aside from a considerable amount of fresh blood near the ora serrata below.

"One hundred and ninety serial sections through the portion of the optic nerve immediately behind the disc and including the entire course of the central vessels within the nerve show no evidence of inflammatory or atrophic changes in the nerve substance, and no changes in the blood vessels.

ANATOMIC SUMMARY

"We have therefore an active chronic iridocyclitis, healed operative corneal and scleral wounds, and an operative coloboma of the iris above. The eye shows effects of increased intraocular pressure in the displacement of the iris and lens system forward, in the flattening of the ciliary body and in the marked atrophy of the retina. No anatomic or histologic evidence of sympathetic inflammation is present. The presence of the chronic iridocyclitis throws doubt on the clinical diagnosis of primary glaucoma, and it is impossible to say from the anatomic findings that an anterior uveitis without clinical signs had not preceded and caused the glaucoma."

The conclusions deduced from the microscopic examination deserve careful consideration on account of their differences from the clinical findings. First, as to the non-existence of anatomic or histologic evidence of sympathetic inflammation: Although the changes in the iris, ciliary body and chorioid, as described by Fuchs, were absent, nevertheless the clinical symptoms were those of a sympathetic inflammation. Whether this was due to some agent entering the exciting eye as the result of the iridectomy, paracentesis or sclerotomy, I am unprepared to say. Until the pathologic anatomy of infiltrative-proliferative uveitis as described by Fuchs is found in all cases, and more firmly established as a pathognomonic finding, our diagnosis must be based on the clinical manifestations of the disease. The mere fact that the anatomic findings in this eye show a chronic iridocyclitis does not prove that it preceded the glaucoma and made it a secondary glaucoma, since the clinical precipitates on the posterior layer of the cornea and posterior synechia were not present until eight weeks after the onset of the primary glaucoma; but they did follow just exactly twenty-eight days after the iridectomy, and may very well have caused it. The patency of the sinus angles in all sections, and the lumina of the canals of Schlemm, free and lined by a well-preserved endothelium in nearly all sections, is striking and deserves careful consideration. That a gross obstruction of the filtration angle at any point in the filtration zone accounted for the increased intraocular pressure is not at all probable, and the fact that another attack followed iridectomy seems to be both pertinent and conclusive. It is more reasonable to assume, according to Priestley Smith, Bulson and Troncoso, inasmuch as primary glaucoma in a certain group of cases is dependent on disease of the blood or blood vessels causing an excess of fluid in the vitreous chamber, the exit of which is prevented by the swollen ciliary processes, or on alteration in the constitution of the intraocular fluids with failure in drainage, that the acute glaucoma here was dependent primarily on some vascular disturbance. As a result of this vascular disturbance, possibly due to some form of toxemia, there is diminution in the circulation of the blood favoring the occurrence of hemorrhages which result rather from transudation than from ruptured vessel walls.

103 State Street.

ABSTRACT OF DISCUSSION

DR. S. D. RISLEY, Philadelphia: I have no adverse criticism to express concerning the treatment pursued, but I think that there is opportunity for another opinion than that given in the paper, as to the nature of the case. This man was free from arteriosclerosis. He was a healthy man, 31 years of age. The attack came on suddenly, without clinically recognized cause, and throughout the subsequent history of the case the different manifestations are, to me, unique. It is only when we come to the laboratory study of the enucleated eye that we get any light on its essential nature. The hemorrhages, which occurred, it should be borne in mind, only after the increase in tension came on, throw some light on the case. Whether the intraocular hemorrhage shall occur, as has been suggested here, during the period of low tension, or whether it shall occur with very high tension depends altogether on which set of vessels furnish the hemorrhage—the arteries or the veins. If we let up the tension very suddenly in a glaucomatous eye with high tension, by iridectomy or otherwise, it is natural that we should expect hemorrhage from a rupture of the retinal arteries or arterioles, whereas the higher the tension the greater the engorgement of the venous system of the eye becomes and therefore venous hemorrhage is more and more imminent. This man had no arterial disease, but the pathologic study of the ball shows that there was unques-

tionably a chronic iridocyclitis, *e. g.*, there was a deposit on the anterior capsule of the lens, left undoubtedly by delicate synechiæ which were torn loose with the dilation of the pupil when the high tension came on. It was at this point in the clinical history that the blood leaked through the pupil into the anterior chamber, pressed forward by the increase of tension, the hemorrhage being a leakage from the venous system of the eye. I think, therefore, that we are justified in regarding this case, not as one of hemorrhagic glaucoma, associated with sclerosis of the retinal arteries, but glaucoma with hemorrhages from the venous system of the eye. It is therefore separated as wide as the poles from hemorrhagic glaucoma with arteriosclerosis. It is important that we distinguish between them. The diagnosis should be changed to glaucoma with hemorrhages.

DR. WALTER L. PYLE, Philadelphia: Through the courtesy of Dr. Frank, a year ago I had an opportunity to examine this patient. From the clinical history and study of the physical signs at that time, I believed the case to be one of sympathetic affection, and despite the absence of the characteristic microscopic findings described by Fuchs, I am still of that opinion.

DR. H. GIFFORD, Omaha: It seems to me that it is altogether premature for us to lay down a microscopic diagram of what we consider to be the findings of sympathetic ophthalmia and say that if the clinical picture, no matter what it is, does not give microscopic findings corresponding with the diagram it is not sympathetic ophthalmia. Remember we do not know what sympathetic ophthalmia is. The idea is wrong. Here is an eye that had abundance of chance to get infected. Several openings had been made. We find the evidence of iridochoroiditis. Whether it was of a kind to produce sympathetic ophthalmia we do not know. We have to diagnose sympathetic ophthalmia from the clinical picture and not entirely from the microscopic findings at the present time.

DR. E. V. L. BROWN, Chicago: I rise to defend my anatomic findings and their significance in this case. First it is true, as Dr. Gifford says, that we do not know the organism which causes sympathetic inflammation, but this does not lessen the value of anatomic facts. The same is true of sarcoma, yet we know when sarcoma is present and when it is not, and from the anatomic facts alone. We must accept Fuchs' statement as to whether the anatomic findings in sympathetic ophthalmia are constant or not. His statement is that in 181 eyes he made a clinical diagnosis either of sympathetic inflammation or of sympathetic irritation and from the anatomic study of these cases made up his mind as to a characteristic anatomic finding. Then, without reference to the clinical histories, he divided the specimens into two groups and, so to say, said of the first group: "Each of these 25 eyes caused inflammation of the fellow eye." And of the second group: "None of these 157 eyes caused inflammation of the fellow eye." Referring then to the clinical records, he found that 24 of the 25 eyes had caused sympathetic inflammation and that none of the 157 had done so. Now, it is true, this is not a constant finding, but in my opinion one must either doubt Fuchs' word or admit he has made a most remarkable contribution. These findings have been corroborated by others and in a recent number of the *Archives of Ophthalmology* Fuchs reiterates his conclusions.

I have shown the specimens of this case to Professor Fuchs as well as to Professors Salzmann and Wintersteiner and to Mr. Treacher Collins and two well-known members of this Section, and my report is made in keeping with the remarks of these men. I would not have had the temerity to present simply my own opinion of the case. Yet I have studied the facts with an open mind. I saw the patient before the eye was removed, and my clinical diagnosis was sympathetic inflammation. The eye had had many openings made into it; there was ciliary injection and there were also precipitates on the back of the cornea of the fellow eye. But many traumatized eyes do not cause sympathetic inflammation, and no one has yet described a picture of the inflammation in the second eye so typical that we may cover the primary eye and diagnose sympathetic inflammation from the appearance of the second eye alone. A perforating wound and precipitates on the back of the other cornea do not make a diagnosis of sympathetic inflammation, and unless we go back to the dark ages we must change a clinical diagnosis when reliable anatomic facts refute it. I hope Dr. Frank will state, in summing up, why he still considers this case one of sympathetic inflammation.

DR. G. H. PRICE, Nashville: Dr. Risley called attention to a very significant point in this particular case, when he said it was glaucoma with hemorrhage. It is a well-known physical fact that in a locomotive boiler which has been carrying a pressure of 200 pounds to the square inch and in which the pressure has run down to 30 pounds or less, there may be an explosion due to some defect in the mechanism by which this pressure is suddenly released. Or if in a boiler that is carrying a temperature of several hundred degrees, and a steam pressure of 200 pounds, a valve is suddenly opened which liberates the pressure instantaneously, the water remaining in the boiler, which is above the steaming point, is immediately converted into steam and the result is an explosion of the boiler. This is the same principle of the high-tension hemorrhage in glaucoma when we do an iridectomy; the tension being immediately released, a hemorrhage occurs because the high blood pressure suddenly overfills the vessels, causing the walls to give way, since the restraining influence of the intraocular pressure is lost. There is another very simple physical experiment that perhaps bears some relation to the condition we find present in some of these cases. If we take a flask and fill it half full of water and bring it to the boiling point and allow it to boil a few minutes, and while boiling remove from the flame and cork it, the ebullition ceases. If we then apply cold to the flask the supernatant steam is condensed, the tension lowered and the water boils again. There may be hemorrhages, depending on these two physical principles. In the case reported, it was a low-tension hemorrhage, a venous hemorrhage, and as Dr. Risley has suggested, this in all probability was due to some autoinfection or autointoxication somewhere, and the condition set up in the other eye, for which the enucleation was made, was probably brought about by just such a condition. Now if we had reached the point where we could determine whether we had a glaucoma which was due primarily to a marked increase in tension *per se*, then we would be in a position to determine what was the best procedure. In the case reported by Dr. Bull, of exceedingly high tension, if he had made an iridectomy in that case the chances are that he would have had considerable hemorrhage, due to the sudden release of the restraining influence on the retinal vessels, and so the thing to do was to gradually decrease the tension by paracentesis. But in Dr. Frank's case it was due to an entirely different etiologic factor and the relief of pressure, unless it was total, had no effect on it.

DR. F. H. VERHOEFF, Boston: I have examined many cases of sympathetic ophthalmia and before Fuchs published his work had come to the conclusion that there was a perfectly characteristic lesion. There is one point, however, connected with the histology of it that to me is not absolutely clear. The essential lesions consist of focal collections of lymphoid cells in the centers of which epithelioid and occasionally giant cells appear. Now in the early stage it is a question whether epithelioid cells are present, or if so, whether they could be distinguished from the lymphoid cells. Thus, going by Fuchs' description, when examined in this stage we must say the case is not one of sympathetic inflammation, although strictly speaking we would be wrong. However, I have never seen a case of sympathetic ophthalmitis develop after an eye showing this histologic picture was enucleated, although I have examined many such. At this early stage, therefore, if such it is, it is safe to say that the other eye will not become affected. In regard to Dr. Frank's case, I would like to suggest that the most obvious explanation is that it was a case of serous iritis complicated by glaucoma. Probably the condition had been present sometime without being noticed by the patient. Afterward, as is usual, the other eye became affected.

DR. MORTIMER FRANK, Chicago: I accept Dr. Risley's criticism of the title of my paper, but until Fuchs' findings are universally accepted as pathognomonic of sympathetic inflammation I still consider my case one of sympathetic ophthalmia according to the clinical symptoms described in the text-books, and I am willing that the pathologists should fight out the diagnosis by microscopic section.

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HAIR BALL OR HAIR CAST OF THE STOMACH AND ITS OCCURRENCE IN CHILDREN

REPORT OF TWO INSTANCES WITH BIBLIOGRAPHY AND SYNOPSIS OF CASES REPORTED TO DATE*

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The occurrence of bezoars in various domestic animals is not uncommon and these strange concretions have been esteemed alike for their antidotal properties against poisons, and likewise because of the efficacy or charm they were supposed to possess against the plague, malignant fevers, vertigo, epilepsy, dysentery and other ailments.

Certain concretions likewise occur in man as a result of the ingestion of indigestible substances; thus Tidemand[1] reports a gastrolith or stone, probably of some resinous material and weighing 15 gm. Friedlander,[2] Vonnegut,[3] and Manasse[4] each record cases of gastric shellac calculus, while Ewald[5] quotes an instance of a carpenter who mistook his varnish for liquor and drank it; it formed a gastrolith. Outten[6] has reported a case of double gastrolith.

Concretions of vegetable origin are also occasionally found in the stomach of persons; thus Langenbach[7] and Kooyker[8] relate such instances. In Schreiber's[9] patient, a peasant woman, a phytobezoar was found at operation. The mass was composed of the fibrous roots of a plant (*Schwarzwurzel*) which is said to be a popular remedy for all sorts of ailments in Germany.

In Quain's case[10] a mass weighing 4 pounds and consisting chiefly of cocoanut fiber was taken from the stomach at autopsy. It had caused perforation and peritonitis. More fortunate was a woman mentioned by Capelle[11] who vomited a foreign body formed exclusively of vegetable débris and thus discredited a diagnosis of cancer of the stomach which had been made.

The most remarkable of these singular concretions, however, is the hair ball, or, more correctly speaking, the hair cast of the stomach, and sometimes of the intestines also, and, while they can not be called rare conditions, at least they are of infrequent occurrence, for, after a somewhat thorough search, I am able to find only 42 cases recorded to date. Oddly enough thirty-nine of the patients were females, the youngest of whom, my patient, was 8 years old at death, while the oldest person was an insane man, aged 43.

Curiously enough, very few instances of trichobezoar are found reported in German literature, the habit of eating hair apparently being more prevalent among English-speaking people, which led Bussell to say that "the eating of hair seems to be a favorite occupation of English women."

The history of my patient is as follows:

CASE 1 (BUTTERWORTH'S).—*Patient.*—Pearl F., white, aged 8, a native of Mississippi. Her father is living and well at 53; her mother living, 38 years old, has had bowel trouble all her life and does not enjoy good health. They have had eight children: Pearl, the subject of this history, and seven who are living. All look sickly, except the two oldest girls, 16 and 19 years old, respectively. The five younger children are boys and are 4, 6, 8, 11 and 13 years old; they are anemic and emaciated, but are never sick in bed. Examination of their feces show that seven of the nine members of the family have hookworm infection.

***History.*—The patient was sickly from birth until about 2 years of age, after which time she was in apparently good health, though pale and anemic all her life. She had ground-itch every summer since the age of 3. She was not so well for the last two years, though she had no definite ailment. A little more than a year before her death she complained of extreme weakness; would vomit frequently, but never any blood. The stools were dark in color and contained much mucus. She was known to eat sand and dirt for several months prior to her last illness. Not a member of the family suspected that she was eating her hair, which was worn long and loose over her shoulders. Her mental condition was not abnormal, yet she had odd ways peculiar to herself. She was very shy and secretive, good-natured, very placid and seemed to lack power of concentration.**

Fig. 1.—Hair cast of stomach. Butterworth's case.

***Present Illness.*—The patient had complained of abdominal pain for about two weeks, when she was seen (Nov. 3, 1908) by Dr. N. W. Fountain of Nicholson, Miss., to whom I am indebted for these notes. He discovered a firm crescent-shaped swelling in the epigastric region. The temperature was 104 F., respiration 40, and pulse 148 per minute. The patient was twice given a cathartic without satisfactory results. On the fourth day of her illness, 12 grains of calomel with soda were given, after which she had several loose copious movements. Temperature dropped to normal, respiration to 20 and pulse to 108. On the fifth day the blood was examined and tertian malarial organisms were found. The feces contained an immense number of uncinaria ova. The patient was given quinin, phenacetin and stimulants.**

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* Read before the Section on Diseases of Children, of the American Medical Association, Atlantic City, June 10, 1909.

1. Tidemand: Norsk. Mag. f. Lægevidensk., 1865, p. 80.
2. Friedlander: Berl. klin. Wchnschr., 1881, No. 13.
3. Vonnegut: Deutsch. med. Wchnschr., 1897, No. 26.
4. Manasse: Berl. klin. Wchnschr., 1895, p. 723.
5. Ewald: Ztschr. f. klin. Med., xiv, No. 3. (Ewald's 1902 Ed., p. 376.)
6. Outten: Med. Fortnightly, St. Louis, Aug. 15, 1894.
7. Langenbach: Verhandl. der deutsch. Gesellsch. f. Chir., 1881, ix Cong., p. 54.
8. Kookver: Ztschr. f. klin. Med., 1888, xiv, 203; abstr. Sajous' Ann. of Universal Sciences, 1889, vol. 1, c-23.
9. Schreiber: Mitt. a. d. Grenzgeb. d. Med. u. d. Chir. 1896, 1, 729.
10. Quain: Tr. Path. Soc., v, 145.
11. Capelle: Jour. de. méd. de Bruxelles, February, 1861, p. 147; Hemmeter: Diseases of the stomach, Ed. 3, p. 612.

Examination.—The patient entered the Charity Hospital (New Orleans, La.) on the eleventh day of her illness, when it was noted that she was very weak, emaciated and anemic. She rested on her side in bed with the knees bent and thighs flexed on the abdomen. All visible mucous membranes were pale. Examination of the chest was negative except that there was a pronounced hemic murmur. The abdomen was distended, somewhat tender and tympanitic. There was a firm somewhat irregular cucumber-shaped swelling occupying the epigastric region and losing itself in the hypochondriac region of the left side. The mass was only very slightly movable; firm continuous pressure caused slight indentation for a time. The child complained of pain after manipulation. The liver was slightly enlarged; the lower border was palpable one inch below the costal border; it was not sensitive; was smooth and hard. The spleen was not palpable in its normal region. There was considerable edema of the feet and legs. The urine was negative for sugar, albumin and indican, but contained a small

Fig. 2.—Stomach, Butterworth's case, showing ulcer.

amount of pus with hyaline and granular casts. Numerous uncinaria ova were found in the stools, as well as blood and pus. The blood was free from plasmodia. Hemoglobin was below 15 per cent.; leucocytes, 20,000 per cm. Differential count:

Large mononuclears, 4 per cent.; small mononuclears, 13 per cent.; polynuclears, 81 per cent.; eosinophiles, 1 per cent.; transitionals, 1 per cent. Polychromotophilia, poikilocytosis and normoblasts are noted in the report. A von Pirquet test was negative.

Course of Disease.—The patient's condition was such that an exploratory operation was not considered justifiable. During the last two weeks of life she ran a constant temperature usually between 100 and 101; had a fairly good appetite; had daily several dark-colored, offensive stools containing mucus and blood. She was not nauseated, neither did she vomit. At times she complained of severe abdominal pain, which was paroxysmal in character and was so violent that it caused her to cry out aloud. She was intelligent and singularly placid. It was remarked later that several of the nurses had observed that she would twine slight strands of her hair (which was rather long and worn loose) around her fingers from time to time. No one saw her put any hair into her mouth and her family denied all knowledge of the habit. Examination of her scalp after death, however, showed several irregularly bald patches. She gradually grew weaker, became delirious, edema increased, and death occurred after an acute illness of twenty-seven days. Thymol was given on three occasions with negative results. In this connection it is to be noted that when the stomach was opened at autopsy, the contents, viz., mucus, food and hair ball, had a pronounced thymol odor. The last course, 15 grains, divided in two doses and given one hour apart, was taken forty-six hours before death.

Autopsy.—This was held by Dr. O. L. Pothier, pathologist to Charity Hospital, an abstract of whose report follows:

Body of white female child, which was still warm and was anasarcous. The lungs and heart were apparently normal. The abdominal cavity was found to contain fluid which seemed to be purulent. The stomach was filled with a hard mass which was resistant to touch, and measured 16 x 8 x 5.5 cm. On section a mass of hair was found which filled the whole cavity of the organ and resembled a cast of viscus. It was free in the stomach and was not adherent to any portion of the mucous membrane, which was covered by a thick coating of glairy mucus. In a dry state the hair cast, which was a fairly accurate mold of the stomach, was 4 inches wide at the esophageal end and had a fairly uniform thickness of 1¾ to 2 inches. It weighed, dry, 3¾ ounces, and was composed of human hair of a texture and color corresponding to patient's. Many of the hairs measured 15 to 18 inches in length. Incorporated throughout the mass were small particles of husks of grain and fruit. The mucous membrane of the stomach was normal except at a point 2 cm. from the pyloric extremity and along the lesser curvature and anterior wall of the organ. At this point there was a chronic circular ulcer about one inch in diameter which formed an abscess cavity and which was firmly adherent to the under surface of the right lobe of the liver. Pylorus and cardiac extremities were patulous. On examining the small intestine, several hundred uncinaria were found imbedded in the mucous membrane; very few were present in the duodenum, the greater number being in the jejunum. They progressively diminished in number in the ileum, none being found beyond the middle third of this portion of the intestine. There was considerable blood and mucus in the small bowel. The mucous membrane was of a shaven-beard appearance, and presented many points of punctate hemorrhage, particularly in the jejunum. The spleen was adherent to the diaphragm and to the posterior wall of the abdomen, and presented two superficial gangrenous areas, one at the lower pole which measured 4.5 by 3 cm.; the other along the anterior border and upper pole measured 8 by 2.5 cm. The kidneys and liver showed a parenchymatous degeneration.

The habit of swallowing hair is most often commenced in early life. Lyons[12] relates that a boy, 2 years of age, would pick at the carpet, woolen garments or anything of a hairy nature. He had convulsions, was given a cathartic, and passed by rectum a ball of hair about the size of a silver dollar, together with some smaller masses. He had no more convulsions. Jacobson's patient[13] acquired the habit at 2½ years of age; Allen's[14] Best's,[15] and Pollock's,[16] and the patient in the British Medical Museum case[17] at the age of 3, while it is recorded that Ritchie's[18] and Baudamant's[19] patients had been addicted to eating hair all their lives. In 75 per cent. of the collected cases the patients were

12. Lyon: Boston Med. and Surg. Jour., cxlii, No. 15, p. 385.
13. Jacobson: A Hair Cast of the Stomach, Med. News, 1901, xxxvi, 245; abstr. THE JOURNAL A. M. A., 1901, xxxvi, 596.
14. Allen, W. L.: A Case of Gastrotomy for the Removal of Hair Ball, THE JOURNAL A. M. A., 1896, xxvi, 199.
15. Best: Brit. Med. Jour., 1869, ii, 630.
16. Pollock: Proc. Path. Soc., London, 1851-52, iii, 327.
17. Gould and Pyle: Anomalies and Curiosities of Medicine, 1897, p. 640.
18. Ritchie: Edinburg Med. Jour., 1849, ix, 931.
19. Baudamant: Jour. de méd., Paris, 1779, ii 501.

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known to have acquired this habit during childhood. In the majority of these instances it is not clear why such a perverted appetite existed; it is not noted that the presence of intestinal parasites played any important part in the etiology, for I find only two such instances, my own case and Quain's[10]

The fact that insane persons are addicted to eating foreign bodies has led to erroneous conclusions; those addicted to eating hair, almost without exception, are apparently mentally sound; demented subjects usually partake of more solid substances, viz., nails, screws, wood, etc. In this series only four patients were reported insane: those in Cobbold's,[20] Campbell's,[21] Gemmel's,[22] and Osler's[23] cases; and, with the possible exception of the last mentioned, all had such extraneous matter as nails, tacks, leaves, cocoanut fibers and twine, in association with limited amounts of matted hair, removed from the stomach.

In fact, Dandois' patient[24] is the only one reported to have been hysterical, while several narrators expressly state that their patients had good, active minds, and that there was not the slightest suspicion of an impaired mentality.

It is probable that the custom of young girls wearing their hair loose, flowing and hanging over the shoulders, is an important factor in favoring the establishment of the practice of biting the hair or passing strands through the mouth, or between the teeth. This is most likely the reason why hair bolus is practically confined to the female sex, and to its greatest frequency at an age corresponding to the period in a girl's life when her hair is worn long and loose.

Various reasons are given in explanation of the abnormal appetite; thus Paton's patient[25] ingested her hair "because it was so nice;" Knowsley Thornton's patient[26] had for years been in the habit of "eating the combings of her hair, and her sewing-cotton ends, to clean her tongue;" while Schönborn's patient[27] confessed that she swallowed hers in order "to make her voice clear;" Jacobson's[13] because she rather liked the tickling sensation produced by the hair in its transit to the stomach; another[28] adopted this method with suicidal intent and failed.

The localization of a trichobezoar is influenced by its size; it can be readily conceived that small tufts or mats of hair may be passed through the bowel. The observation of this fact alone suggested the diagnosis in at least three cases—viz., Thornton's,[26] Harvie's,[29] and Rather's.[30] Others were less fortunate in that the migrating concretion either caused intestinal obstruction (Brewster's[31]) or a fatal perforation (Ritchie's [18]).

A small concretion in the stomach will assume a spherical or oval form; with increase of size it becomes molded to the contour of the viscus and may overflow into the duodenum (Bruce,[32] Harvie,[29] Allen,[14] Von Bollinger[33]); and even into the jejunum (Pollock[16] and Baudamant[19]); less frequently the prolongation protrudes through the esophageal opening of the stomach. In only one instance was a hair ball limited to the esophagus (Gemmel[22]).

Most often only one hair bolus is present in the stomach; when two occur they appear facetted and join each other snugly. Such are reported by Wood,[34] Finder,[35] Russell,[36] and Osler,[22] while Day[37] records the only instance I can find of three distinct trichobezoars occupying the stomach.

These tumors vary in bulk and weight. One of the smallest, Pell-Ilderton's,[38] weighed, dry, 2¼ ounces, or about one-third of its original weight. Several were over 2 pounds; O'Hara's,[39] Baudamant's,[19] Dandois',[24] Swain's[40] weighed 5 pounds 3 ounces, while Mermet d'Hauteville's[41] is reported to have weighed about 6 pounds, and after nineteen days of desiccation weighed 2½ pounds; the latter two are the largest known.

The long-continued action of the digestive juices influences but very little the color or general character of the hair ingested; it has been explained (Bell[42]) that chemical changes occur in the stomach, with the result of deepening the shade of the hair composing the bolus; while the individual hairs are wonderfully pliant and strong, notwithstanding the influence of digestion, perhaps for years.

It is remarkable how little the general health suffers, considering the duration of the habit; eventually the limit of toleration is reached, and Nature protests. Pain is a fairly constant symptom; vomiting at some time or other is usual, and yet, considering the sponge-like and absorbent character of the hair cast, it need occasion no wonder if vomiting should not occur. This happened in my case, and, after seeing the character of the foreign body, I could readily understand that she could not have vomited even had she wished to. Hematemesis is comparatively rare, while dyspepsia and an abdominal tumor are usually the earliest and most constant of symptoms.

Alternating attacks of constipation and diarrhea are the usual rule; eventually the breath becomes exceedingly offensive and malodorous; anemia grows more pronounced, ingestion of food more difficult, emaciation and weakness more noticeable, and, unless surgical measures are instituted, with rare exceptions (Rather,[30] Stover[43]), death occurs from inanition or perforation.

Cancer of the stomach was the most frequent diagnosis; then followed a displaced spleen, floating kidney, fecal impaction in transverse colon and omental tumors.

In 33 cases in which the final results are obtainable 1 patient died following laparotomy, 16 recovered after

20. Cobbold: Jour. Ment. Sc., 1886, xxxii, 52.
21. Campbell: Jour. Ment. Sc., 1886-87, xxxii, 212.
22. Gemmel: Lancet, London, 1894, ii, 432.
23. Osler: Personal communication from Dr. Maud C. Abbott, Montreal, Canada.
24. Dandois: Bull. de l'Acad. roy. de méd. de Belgique, 1903, xvii, 1031.
25. Paton: Brit. Med. Jour., Jan. 18, 1902, p. 147; quoted by W. Soltau Fenwick, Brit. Med. Jour., ii, 1696.
26. Thornton, J. Knowsley: Tr. Path. Soc., London, 1886, xxxv, 199; Lancet, London, Jan. 9, 1886, p. 57; quoted by Homans, Boston Med. and Surg. Jour., 1900, cxlii, 419.
27. Schönborn: Arch. f. klin. Chir. (Langenbuch's), 1883, xxix, 609; Berl. klin. Wchnschr., 1883, xvii, 260.
28. Wren: Internat. Jour. Surgery, October, 1908.
29. Harvie, J. B.: A Case of Hair Ball in the Stomach, THE JOURNAL A. M. A., 1908, l, 512.
30. Rather: Texas Med. Jour., April, 1906, xxi, 358.
31. Brewster: Boston Med. and Surg. Jour., 1900, cxlii, 395; abstr. Med. Rec., 1900, lxxxvii, 687.
32. Bruce: Canada Lancet, November, 1901, xxxv, 123; reported by Cathelin, Bull. Soc. anat. de Paris, iv, 106.
33. Von Bollinger: München. med. Abhandl., 1891, Ser. 1, No. 4; München. med. Wchnschr., June 2, 1891, xxxviii, 383.
34. Wood: Med. Facts and Observations, 1860, viii, 139.
35. Finder: Tr. New York Med. Assn., 1886, p. 1696.
36. Russell: Med. Times and Gazette, London, 1869, i, 681.
37. Day: Brit. Med. Jour., Dec. 20, 1902, ii, 1899.
38. Pell-Ilderton: Brit. Med. Jour., 1907, i, 18.
39. O'Hara (reported by Schlesinger, Medical Club of Vienna, 1899): Wien. klin. Wchnschr., No. 5, 1895; Bull. Soc. anat. de Paris, 1902, iv, 105.
40. Swain: Lancet, London, June 22, 1895, p. 1581.
41. d'Hauteville, M.: Jour. de méd., chir. et pharm., Paris, 1813, xlviii, 147-153.
42. Bell: Montreal Med. Jour., February, 1903, xxxii, 94, 131; also Reference Handbook, vii, 522.
43. Stover: Reported at Amsterdam City Medical Society, 1895; quoted by Harvie, J. B., THE JOURNAL A. M.A., Feb. 15, 1908, p. 513.

operation, 6 died of peritonitis and perforation, 10 died of inanition.

In only five of these cases was a correct diagnosis made prior to operation, viz., Harvie's,[29] Bell's,[42] Paton's,[23] Thornton's,[26] and Stelzner's,[44] and it is to be remarked that the judgment of these men was almost entirely influenced by a knowledge of similar cases. An exploratory operation revealed the true nature of the swelling in several, while 50 per cent. went to the autopsy table for a final solution.

In the light of my recent personal experience I am inclined to think that a most important element in the recognition of these otherwise puzzling abdominal tumors is a fairly active imagination of this condition which occurs most often in young female children.

I append a brief synopsis and bibliography of all cases reported to date, a total of forty-two.

CASE 2 (WOOD'S).—This case is given from the personal recollections of Dr. Hummel: A child, aged about 7 or 8, was accustomed to eat dirt. The parents, having become aware of this habit, were accustomed to shut the child in a plastered room when it was impossible to keep it under observation. The child began to pick the plaster from the wall and ingest it. This went on for quite awhile. The child became cachectic and lingered in an anemic condition with gastrointestinal disturbances for perhaps a year.

Autopsy.—Death finally occurred, and, the symptoms in the case having puzzled the physician, a necropsy was done, and the stomach was found to contain a ball of cattle hair about as large as a hen's egg. It was then recalled that plaster had been eaten by the child, and that the hair found in the stomach had been ingested with the plaster months before.

It may be explained that the house in which the child had been kept was of antebellum days, and that it was the custom of those days to incorporate cows' hair from tanneries in the plaster used on the walls of dwelling-houses in order to give it consistence and to keep it from crumbling. It is readily realized, then, that the child had taken in the hair while eating the plaster from perverted taste. This case occurred in the practice of Dr. Wood of Shelbyville, Tenn., and the narrator merely has rather indefinite recollections of the circumstances of the case, for at the time he was himself a small boy.

CASE 3 (HARVIE'S[29]).—A girl under 10 years, well nourished, always a moderately nervous child, bright in her school studies, began picking at carpets and woolen materials before she commenced to walk. She developed an early desire to pick her hair and swallow it. She was almost completely bald from the habit, and her mother noticed small masses of hair in her stools at odd times for many years. She was taken ill with nausea, vomiting and pain. A sausage-shaped mass was found in the epigastrium, which was thought to be impacted feces. A brisk cathartic was followed by a copious purge which contained a small bundle of hair. This with the previous history led to a diagnosis of probable hair ball.

Operation.—A hair-cast was found, which projected into the duodenum about 1¼ inches. It measured 13 inches along its greater curvature, with a circumference of 7 inches. It was composed of hair of varying length, absolutely black and densely packed. There were no definite areas of ulceration. The patient was discharged on the twelfth day after operation completely recovered.

CASE 4 (RATHER'S[28]).—The patient was a girl 9 years old. At the age of 7 it was necessary to clip the child's hair short to keep her from eating it. She confessed to a craving for it, and would secrete herself and indulge her abnormal appetite. For two years "the stomach was easily outlined by palpation and was seemingly as hard as wood." Every few months the child had severe attacks of vomiting. Finally she was given half an ounce of castor oil every three hours for two or three days, and passed three or four rolls of densely matted hair, 2 inches in diameter and 8 inches long, which had little or no feces mixed with them. There was immediate relief and rapid recovery.

CASE 5 (BELL'S[42]).—A girl, aged 12, for nearly two years had attacks of vomiting, diarrhea and abdominal pain. The vomitus consisted mainly of frothy mucus, with at times particles of food. Six months before operation she had a very severe attack of vomiting and diarrhea, when a mass was felt in the abdomen, and was thought to be an abscess of the liver. The patient weighed 49 pounds, was very bright and intelligent. At about 3 years of age it was noticed that she had a habit of breaking her hair with her fingers, and some difficulty was experienced in overcoming the habit. A diagnosis of probable hair ball was made prior to operation.

Operation.—A hair cast of the stomach 18.1 cm. long and weighing 702 gm. was removed, and a small detached mass was seized in the intestine. Some of the hairs were found to be 18 inches long. At a second operation a hair cast of the intestine 8 inches in length was extracted. At a fourth operation a section of the small intestine was found riddled with openings and 2 inches of intestine were resected. Other perforations developed, and it was necessary again to resect a portion of the bowel, when a Murphy button was used, which she passed. Six months after she entered the hospital, after undergoing eleven operations, she was said to be "on the high road to recovery."

CASE 6 (PATON'S[23]).—The patient was an intelligent girl, aged 9, in whom a lump was accidentally found in the epigastric region. As she was known to have eaten hair and other similar substances since she was 3 years old, and had only been broken of the habit recently, a hair ball was diagnosed. There were no gastric symptoms.

Operation.—On opening the stomach, a mass consisting chiefly of the child's own hair, 7 inches long, weighing 7¼ ounces and having the general shape of the stomach, was extracted. The child recovered without a bad symptom. While the case was under observation, the doctor's cat had vomited a small hair ball and this suggested the diagnosis of hair ball in his patient.

CASE 7 (JACOBSON'S[33]).—A girl, aged 11, had gastric disturbance for two and one-half years. She vomited a good deal of frothy mucus, but never at any time any food or blood. She had colicky pain, was constipated and lived principally on milk. A cucumber-shaped mass was noticed in her abdomen one year prior to operation. She was quite nervous; was an exceedingly bright child.

Operation.—A perfect cast of the stomach was removed, which on section was seen to be composed almost entirely of hair, with an occasional bit of string. The cast weighed 15 ounces. Later she admitted that from the earliest years of her life she had been in the habit of biting off the ends of her hair, which was always worn long enough to be brought to her mouth. At first she thought she did it simply because she was nervous, but later she rather liked the tickling sensation produced by the hair in its transit to the stomach. She made a good recovery.

CASE 8 (SCHOPF'S[45]).—A girl of 12, from her fifth year on, had been in the habit of biting her hair. About one year before the time of operation, she began to vomit and had colicky pains in the stomach; a tumor appeared and was diagnosed as a floating kidney.

Operation.—(At this time diagnosis was made.) A hair tumor weighing 160 gm. in a dry state was removed. A long process of the hair cast extended into the duodenum. Good recovery.

CASE 9 (BREWSTER'S[31]).—A girl of 10 had a habit of chewing the ends of two curls which were long and hung over her shoulders. She was sick for two weeks with what was thought to be indigestion. After repeated and unavailing attempts to move the bowels, symptoms of complete obstruction came on. In the median line over the bladder was felt a sausage-like mass about the size of half a banana.

44. Stelzner: Centralb. f. Chir., 1896, No. 31, supplement, p. 121.

45. Schopf: Wein. med. Bl., 1899, No. 44, p. 863; abstr. Med. Rec., April, 1900, p. 703.

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Operation.—The mass was in the small intestine, and when removed measured 3½ inches long and 4½ inches in circumference. It was composed of long and short hairs firmly matted together. The patient died five hours later.

CASE 10 (STOVER'S[45]).—A girl 11 years of age was in the habit of eating her hair, the temporal region being bald. She was said to have suffered with colicky pains in the upper part of her abdomen for two years. She presented symptoms of incomplete obstruction of the bowels for a period of ten days with rectal tenesmus, and then passed per rectum, with relief of all symptoms, a ball of hair which measured 2 inches in length and 3 inches in circumference.

CASE 11 (ST. GEORGE HOSPITAL MUSEUM[46]).—Gould and Pyle, quoting from the meeting of the British Medical Association, London, 1895, state that in the Museum of St. George Hospital, London, are masses of hair and string taken from the stomach and duodenum of a girl of 10. It is said that from the age of 3 the patient had been eating these articles.

CASE 12 (SCHÖNBORN'S[47]).—A girl, 15 years old, vomited incessantly, and became weak and emaciated. A freely movable swelling occupied the left half of the abdomen; it was painful at all times. The diagnosis rested between a floating kidney, movable spleen or a growth of the omentum.

Operation.—The stomach was found distended and a mass of hair weighing 281 gm. was removed. It was molded to the form of the gastric cavity and consisted of a network of short hairs felted together. The patient confessed that four years ago she had swallowed the hair in order "to make her voice clear." Recovery.

CASE 13 (DANDOIS'[48]).—A girl, 16 years old, was not in good health from the age of 12, and gradually grew worse, had occasional convulsions, probably had hysteria. A hard swelling was discovered occupying the epigastric region, the motility was something extraordinary; the swelling resembled a fetal head; it was not thought to be the stomach.

Operation.—A compact dirty mass, malodorous and difficult to dislodge, was removed from the stomach; it weighed 1 kilo and measured 45 c.c. from pole to pole; circumference was 25 c.c. It was formed of layers of dark hair of same color as patient's.

Recovery followed.

CASE 14 (ALLEN'S[44]).—A girl, aged 16, had felt an oval and freely movable swelling in the region of the stomach for five or six years. She had lost weight during the last year, had some pain after eating, vomited frequently and had frequent attacks of diarrhea followed by constipation.

Operation.—A hair ball removed from the stomach was 17 inches long, including the part that extended into the duodenum, and 8½ inches in circumference at the greater curvature.

After operation patient admitted that she had been in the habit of eating her hair ever since she was 3 years old, and up to two years ago. She had bitten off, pinched or pulled out the hairs which she rolled around her finger into a ball or loop and then swallowed. Recovery ensued.

CASE 15 (VON BOLLINGER'S[49]).—A girl, aged 16, had been complaining for two and one-half years with symptoms of gastrointestinal catarrh, anorexia, vomiting, abdominal pain, diarrhea, insomnia, and finally only liquids could be ingested. A swelling was present in the epigastrium, which was thought to be a malignant tumor. Death resulted from exhaustion.

Autopsy.—The stomach and duodenum were distended with a great mass of hair measuring 55 cm. long and 11 cm. broad. As a child the patient had been in the habit of pulling out her hair and putting it in her mouth, which she must have swallowed.

CASE 16 (KNOWSLEY THORNTON'S[50]).—A girl, 18 years old, presented very few symptoms. There was a sausage-shaped swelling in the region of the transverse colon. Frequent doses of castor oil brought away a small concretion of hair and fecal matter.

Operation (Gastrostomy).— A hair cast was extracted measuring 9 inches long by 2½ wide, and which weighed 2 pounds. A sponge was unintentionally left in the abdomen, which was recovered by reopening the abdomen on the following day. Recovery followed.

The patient had been in the habit of "eating the combings of her hair and her sewing-cotton ends to clean her tongue." This she had done for about twelve years. Probably this is the first authentic case in which a correct diagnosis was made prior to operation.

CASE 17 (RANZI'S[46]).—A young woman had had the habit of swallowing hairs, threads, etc., since childhood. Her symptoms were referable to the stomach, and there was a history of the passage by rectum of a hair ball four years previously. There was a movable tumor in the abdomen.

Operation.—A concretion composed of hair, thread and rubber bands was found nearly filling the stomach and duodenum down to the ascending position. This, when removed, presented a perfect cast of these organs, weighing, after drying, 440 gm. and measuring 22 cm. in the stomach and 44 cm. in the duodenum; in all, about 24 inches.

CASE 18 (BERG'S[47]).—A married woman, aged 26, had suffered for three years with symptoms of dyspepsia and anemia and with attacks of vomiting of glairy mucus. For two years there had been noticed a swelling in the epigastric region, and it had grown more rapidly during the last six months. In the epigastric and left hypochondriac region was a swelling as large as a hand, with a concave upper and a convex lower border. It could not be displaced toward the region of the kidney. The spleen was in its normal position.

Operation.—Laparotomy showed that the swelling was in the stomach and was composed of hair, short and long, forcibly compressed. It was removed piecemeal and weighed about 900 gm. Complete recovery ensued.

The mother of the patient said that when about 3 years old she had a habit of chewing hair, but the patient denied having done so since she could remember.

CASE 19 (RUSSELL'S[38]).—The patient was a woman, aged 31. Her health had been good and she had never suffered from indigestion. She had a severe attack of hematemesis. A large swelling occupied the left side of the abdomen and extended into the pelvis. It was thought to be an enlarged spleen. The tumor was first observed when the patient was 14 and had been gradually increasing in size for the last seventeen years.

Autopsy.—The tumor was found to consist of a great mass of human hair, accurately molded to the shape of the stomach in which it lay. It had drawn down the stomach into a vertical position, so that the pylorus lay in the pelvis. The mass of hair was divided into two unequal portions, accurately fitted to one another, constituting a hard solid mass; it weighed 4 pounds 7 ounces, was 12 inches long, 5 inches broad, and nearly 4 inches in thickness. The mass was divided and found to be composed entirely of human hair intermixed with broken-down particles of food. The hairs constituting the tumor coincided exactly with the hair on the patient's head, both in color and in general character. They were of all lengths, up to 20 inches; most of them of the greater length. Not a single root could be found; all appeared to be broken off. A single small ulcer existed in the greater curvature of the stomach, which otherwise was healthy, except that the pyloric orifice was four times its normal diameter.

CASE 20 (MAY'S[48]).—A woman, aged 26, began to suffer pain, about three years before examination, in the left hypochondriac region, and soon noticed a hard swelling near the navel, a little to the left of the median line. When seen the tumor occupied the situation of a distended stomach; it was hard and slightly movable. The patient looked unhealthy, had lost flesh, and vomited occasionally. She gradually became weaker and died from exhaustion.

Autopsy.—The stomach was found adherent to abdominal wall, and in it was a mass of hair composed of numerous small hairs matted together by mucus. The concretion measured 20 inches in its longest and 12 inches in its shortest circumference, and weighed 26 ounces; when dry it weighed 10 ounces.

46. Ranzi: Wien. klin. Wchnschr., December, 1905, No. 48; abstr., THE JOURNAL A. M. A., 1905, xliv, 588.
47. Berg, John: Nord. med. Ark., xix, No. 25; Sajous'Ann. Univ. Med. Sc., 1889, i, 23.
48. May: Tr. Chir. Soc., London, 1855; Assn. Med. Jour., London, 1855, ii, 1147.

Inquiry revealed the fact that the patient had been in the habit of swallowing her hair ever since she was 4 years old, a period of twenty-two years. She did not exhibit any trace of mental alienation.

Case 21 (Pollock's[25]).—A young woman, aged 18, had always been delicate, but more so during the last year. For several months she had been suffering from a swelling, about the size of an orange, in the epigastric region. It was not painful on mild pressure, was apparently solid and slightly movable. Following a paroxysm of vomiting she complained of much pain; this recurred on the following day and soon afterward she collapsed and died.

Autopsy.—There was evidence of recent peritonitis. A mass was removed from the stomach and duodenum, which consisted chiefly of long black hair and pieces of strings matted together. That taken from the stomach had a length of 6 inches, a width of 3¾ and a thickness of 2½ inches. The duodenal mass extended into the jejunum; it was 14 inches in length and 2¼ inches in diameter. It appeared that the patient had been known to eat hair since 3 years of age.

Case 22 (Ritchie's[26]).—This was reported by Dr. Steele. A factory woman, 21 years old, had severe and painful vomiting with alternating constipation and diarrhea. A hard swelling was found occupying the whole epigastric space. It was not discovered until after her death that the patient had all her life evinced a morbid appetite for chewing human hair.

Autopsy.—A hair mass was extracted from the stomach, which weighed 21 ounces. It was devoid of a nucleus and seemed composed chiefly of human hair, with here and there small remnants of thread and sponge closely agglutinated with mucous secretion. Near the ileocecal valve, two smaller masses were found, weighing, respectively, ½ ounce, and 1½ ounces, and having the same distinctive characters as the one already mentioned. That portion of the intestinal canal lying in close approximation with the lower concretions were found disorganized and perforated.

Case 23 (Mermet d'Hauteville's[27]).—A girl, 17 years old, often had abdominal pain and irregular fever; had vomited more or less constantly for three years. A swelling of large size of the contour of the stomach and freely movable was present in the epigastrium. She died of inanition.

Autopsy.—On opening the stomach a compact mass of hair was seen extending from the esophagus to the upper jejunum; the central core consisted of the kernel of a nut. The mass was of the same color as the patient's hair. She was almost bald. When first removed, the hair cast weighed about 6 pounds, and after 19 days of desiccation weighed 2½ pounds.

Case 24 (Baudamant's[28]).—This is the earliest reported case of hair ball. It occurred in a boy 16 years old, who was seemingly unable to resist the impulse to pull out and swallow his own hair and that of others also; it is reported of him that he ate all the hair he could find. He had diarrhea, frequent and violent vomiting and fever. An oval mass could be felt a little below the pit of the stomach which became very painful. He died of exhaustion.

Autopsy.—Two masses of hair were discovered; the largest of these filled the stomach and extended throughout the duodenum; this had a cherry-stone for its nucleus. The smaller mass was in the jejunum. The combined weight was 2 pounds and 1 ounce. When dry they weighed 11½ ounces.

Case 25 (Siraud's[29]).—A girl of 16 presented very few functional signs. A hairy mass was removed from the stomach, which weighed 765 gm. and measured 28 c.c. by 7 c.c. in width. The condition had been diagnosed as fibroma, tuberculous peritonitis, splenomegalia or cyst of the pancreas.

Case 26 (Stelzner's[30]).—A young woman 18 years old, habitually bit off the ends of her own hair and of other girls also.

Operation.—Stelzner, who knew of Schönborn's case, suspected hair-ball prior to operation. A hair-ball weighing 180 gm. and the size of a goose egg was found at operation. The patient made a good recovery.

Case 27 (Swain's[31]).—A woman of 20 had had almost daily attacks of vomiting during the last five years. There was a large abdominal swelling, well defined, solid and very movable laterally. It stretched obliquely across the abdomen from the left costal border down into the pelvis; the fingers could be passed around the lower border, between it and the pelvic cavity. It was continued up behind the left costal cartilage by a thick pedicle apparently about 10 or 11 inches in circumference. There was no tenderness on pressure. A tentative diagnosis was made of tumor of omentum or a splenic enlargement.

Operation.—The mass was removed piecemeal from the stomach. Mucous membrane at the pyloric end was studded over with circular patches of granulations about the size of a shilling. Cardiac extremity was healthy. The concretion weighed 5 pounds, 3 ounces. Recovery ensued.

It was recalled that at one time the patient had had a very fine head of black hair, which fell below her waist, and it was noted that on three occasions during her illness she became quite bald.

Case 28 (Connold's[32]).—An idiotic, epileptic and hydrocephalic boy of 18 had been in very poor health for more than a year when obstinate vomiting set in, and he died from exhaustion.

Autopsy.—The peritoneum showed no signs of inflammation; the stomach was enormously distended and contained an elongated ball of human hair and horse hair, all closely matted together. The mass in its wet state weighed 2¼ pounds. There were no signs of irritation, inflammation or ulceration of the mucous membranes of the stomach or intestines.

Case 29 (O'Hara's[33]).—Reported by Herman Schlesinger. A woman, 22 years old, was delirious following an attack of grip, during which time she ate her hair. There was no gastric trouble other than continued pain. A swelling was present, about the size of a cocoanut, which was freely movable. This had been diagnosed as a hydatid cyst or a movable kidney.

Operation.—A hair ball was found which filled the stomach and which weighed two pounds. Good recovery.

Case 30 (Wood's[34]).—A young woman of 22, always healthy until about the age of 18, had symptoms of chlorosis, vomiting, constipation, and abdominal discomfort resembling labor pains; passed a small lump of hair by the bowel.

Autopsy.—The abdomen contained a large quantity of dark-colored fetid fluid. Except for the stomach, the organs were normal; the stomach contained two lumps of hair which nearly filled the viscus. The hair in color and texture seemed much like the patient's own, which was noticed to be very short. The total weight of casts when dry was 16½ ounces.

Case 31 (Wren's[35]).—A widow, aged 23, had complained for three months of almost constant pain in the epigestric region, with occasional vomiting. Examination revealed a movable swelling extending down to within one inch of the umbilicus, and up under the ribs and ensiform appendix. Malignant growth was suspected.

Operation (Gastrostomy).—A large mass of hair was delivered from the stomach which weighed 13½ ounces and measured 7½ inches by 5 inches by 1¾ inches thick. After drying, the cast weighed 4 ounces.

The patient afterward stated that because of an illegitimate pregnancy she tried to commit suicide. She pulled her hair out, and swallowed it for that purpose. If so, the hair had been in the stomach for two years and seven months.

Case 32 (Bruce's[36]).—In a non-hysterical woman, aged 26, two months prior to the birth of her child, a swelling which gave no symptoms, was discovered in the left hypochondrium. Twin pregnancy was suspected. The mass persisted after delivery and it was then thought to be a displaced spleen.

Operation.—A hairy mass was removed from the stomach, which weighed 23 ounces and measured 24 inches long and was two inches in diameter, coming to a point in the duodenum into which it extended about 6 inches. The cast consisted entirely of hair twisted and intimately woven together; of a brownish color, and exactly the same shade as that of the patient's. Single hairs were dissected out, ten and twelve inches in length.

Case 33 (Thorburn's[37]).—Reported by Pell-Ilderton. A woman, aged 29, for more than two years had had more or less

49. Siraud: Soc. de chir. de Lyon, 1901; reported by Cathelin, Bull. Soc. anat. de Paris, 1902, iv, 107.

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vomiting after meals; she could usually keep food down if she remained in a recumbent position. The pain was persistent. A mass could be felt in the epigastrium, extending over into each hypochondrium, which rose and fell with respiration, and was freely movable. The patient's hair was scanty and was about 3 inches long.

Operation.—The stomach was opened and a hair ball, in form and contour resembling this organ, was removed. It weighed in the dry condition 2¼ ounces, and measured, length 3¾ inches, depth 2¾ inches, width 1¾ inches.

After the operation the patient was occasionally caught eating her hair, and she admitted having been addicted to the habit ever since she had scarlet fever, fourteen years before.

CASE 34 (BEST'S[30]).—A woman, aged 30, had begun to suffer pain in the stomach at the age of 15, but was able to continue her duties as a domestic until the age of 24. From that time on she was constantly under treatment. A hard nodular tumor could be felt in the epigastrium which was thought to be scirrhous cancer of the stomach. This she stated increased in size. While at work in a harvest field she fainted from violent pain in the abdomen and died seven weeks later.

Autopsy.—A large concretion of human hair was found in the stomach and lower part of the esophagus, forming a mold of the cavities. The mass weighed 30 ounces avoirdupois. Death was due to peritonitis. There was perforation of a chronic ulcer about the size of a shilling, in the posterior wall of the stomach; also three papillomatous excrescences of the mucous membrane existed. These varied in size from a shilling to half a crown. The patient had indulged in the habit of eating hair since the age of 15.

CASE 35 (DICKINSON'S[31]).—Reported by Inman. A woman of 34 died with obscure symptoms. In cleaning her comb she acquired the habit of placing the detached hair in her mouth and swallowed her combings night and morning.

Autopsy.—A hair cast was removed which was matted into a mass of the shape and size of the stomach when distended. The specimen is in the Museum of the Royal Infirmary Medical School.

CASE 36 (SCHULTEN'S[31]).—A woman, 30 years old, for three years had pain in the stomach and vomited frequently; recently had noticed a hard round swelling in the abdomen. Floating kidney was considered the most probable diagnosis.

Operation.—The hair ball was spherical and weighed 120 gm. It consisted of matted fragments of cow's hair. The patient was engaged in spinning cow's hair and from time to time would moisten the fingers with her tongue and thus ingested small amounts of this material.

Recovery followed.

CASE 37 (CARVER'S[32]).—Reported by Sir William Gull. A married woman of 32, of vile temper and intemperate habits, otherwise mentally normal, became pregnant and vomited unceasingly until she expelled a seven months' fetus. An offensive vaginal discharge continued with intense pain in the abdomen for two days, when she died from peritonitis.

Autopsy.—In the stomach was found a large mass of hair which extended through the pylorus into the duodenum, perforating the small intestine. The concretion consisted of string, thread, cotton, wool and hair of three colors; the latter could be recognized as belonging to the patient and her two children. The weight of the mass when dried was 5¾ ounces.

CASE 38 (W. S. COOPER'S[32]).—Reported by Finder. A young woman, who had been insufficiently fed in her youth, suffered great pain which was intensified on the slightest movement. She was unable to take nourishment and there were constant efforts at vomiting. A swelling was distinctly seen and felt in the upper abdomen; the mass was hard on palpation. She was supposed to have a malignant tumor and died of exhaustion.

Autopsy.—In the stomach were found two masses whose combined weight was 16 ounces. The concretions were composed of human hair and horse hair, sewing-thread, grasses and plant fiber. Two deep ulcers had almost perforated the stomach.

The specimens are in the Pathologic Museum of the College of Physicians, New York.

CASE 39 (DAY'S[32]).—A woman, aged 37, a brushmaker by occupation, for about three years had noticed a swelling in the left hypochondrium which was slowly increasing in size. The patient had been treated for ulcer of the stomach with hematemesis six years before. She complained of dull aching in the stomach, with occasional acute paroxysmal attacks, accompanied by nausea without actual vomiting. The swelling, which lay just under the left hypochondrium, was as big as a cocoanut, and felt trilobate. Cystic disease of the spleen was diagnosed.

Operation.—The stomach was incised and three separate masses of matted hair were found. They were facetted and evidently shifted their position occasionally. They consisted of black bristles, such as she was in the habit of using for making brushes. Recovery was uneventful.

CASE 40 (CAMPBELL'S[33]).—A woman, aged 23, had been insane for several years; was thought to have phthisis because of her emaciation and general weakness. She vomited frequently for several weeks before death.

Autopsy.—There was no tuberculous deposit in the lungs. In the stomach was found a mass containing matted hair, portions of blankets, and a bank of fine brown twine unwound. Two feet of this twine extended through the pyloric orifice ito the small intestine.

CASE 41 (GEMMEL'S[32]).—An insane man, 43 years old, had swallowed several foreign bodies, including nails. Vomiting and pain followed. To the left of the median line in the epigastrium, there was a lump, about the size of a duck's egg, which was firm and movable.

Operation.—Gastrostomy was performed and 192 nails, half of a screw nail, a piece of brass wire, a carpet tack, several small pieces of stick, a button and a mass of hair, matted and nearly two inches in length, were removed. The concretion of hair was withdrawn from the lower end of the esophagus from which it was projecting into the stomach.

The patient died.

CASE 42 (OSLER'S).—Photograph and specimen are in the Royal Victoria Hospital Museum, Montreal. A personal communication (Feb. 22, 1908) from Dr. Maud C. Abbott, Curator, Royal Victoria Hospital Museum, Montreal, Canada, says the specimen "consists of two large masses of hair placed end to end and together forming a complete cast of a greatly dilated stomach. It was removed postmortem from an insane woman. The diagnosis was not made before death, though it must have formed an enormous tumor in the epigastrium."

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ABSTRACT OF DISCUSSION

DR. JOHN RUHRÄH, Baltimore: While hair-ball is very rare, the habit of eating hair is not uncommon. I have frequently seen cases in which children have eaten hair. In one case the patient was the child of a physician who brought me something which he thought to be some sort of a parasite. On examination I found that it was hair and the child was carefully watched and the habit broken. Two other cases that I have seen were in hospital patients who ate the hairs which they picked from the blankets.

DR. R. B. GILBERT, Louisville: Did the hookworms found in Dr. Butterworth's case have anything to do with the pathology? Another peculiar thing about such a case is that these hairs are not carried down through the alimentary tract by the solid food taken. It seems that the child eats only a small portion of hair each day and yet the hairs remain in the stomach instead of passing through. Were any of these hairs found in the lower portion of the intestinal tract? This is the first case of hair-ball in the stomach of a human being that I have ever seen. It is certainly an interesting and rare case, and doubtless many of these cases go to autopsy without a diagnosis.

DR. W. W. BUTTERWORTH, New Orleans: I have appended to this paper all the known cases of hair-ball reported to date. In one instance a physician found a tumor in the epigastric region, prescribed a half-ounce of castor oil every three hours, and after two or three days the hair was passed by rectum. There are other instances of similar casts being passed with the fecal matter. It is likely that picking at hairy

50. Inman: Med. Times and Gaz., London, July 3, 1869, ii, 6.
51. Schulten: Centralb. f. Chir., 1896, xxxi, 68; Finska läk. sällsk. handl., September, 1895, xxxvii, No. 9, 1897, ii, 289.
52. Gull, Sir William: Tr. Clin. Soc., London, 1871, iv, 180.

and woolen material is common in infancy and early childhood, and undoubtedly many of these cases give rise to no symptoms. The foreign matter passes through the stomach into the intestinal tract and is carried off without further discomfort.

These concretions (hair casts) may or may not have a nucleus of some hard substance, such as a cherry stone or other fruit seed. In my case, section of the mass disclosed nothing of this sort. The tumor was limited strictly to the stomach. In a case reported by Dr. Knowsley Thornton he states that the mass extended up into the esophagus quite a distance. He facetiously remarks that if the patient had lived long enough, a diagnosis could have been made without the slightest difficulty, because the mass would have protruded from the mouth.

The occurrence in my case of uncinariasis with hair-ball made me wish to know if there were any relation between the habit of hair swallowing and the presence of intestinal parasites. It is well known that children harboring the latter have an abnormal and perverted appetite; they eat all sorts of things. It is interesting in this connection to note that in only one other case (which was reported by Quain) was the patient said to have worms. Oddly enough, these interesting and unusual conditions seem to occur in series, and I am now anxiously watching for another case of hair-ball to present itself and hope to establish a correct diagnosis antemortem and not, as happened in the present instance, postmortem.

EMANATION OF RADIUM ABSORBED AND RETAINED BY COCOANUT CHARCOAL

AN ADVANCE IN RADIUM THERAPY*

JOHN B. SHOBER, A.M., M.D.
PHILADELPHIA

About two years ago my attention was called to a letter published by Prof. E. Rutherford in *Nature*, Oct. 6, 1906, in which he points out that cocoanut charcoal has the property of absorbing and retaining for some time the emanation of radium, thorium or actinium. In this letter it is stated that cocoanut charcoal retains the emanation at ordinary temperatures, for Professor Rutherford finds that the emanation retained in charcoal in a tube open to the air loses its activity at the normal rate observed in sealed vessels. Further, he says:

> In a recent investigation I had occasion to pass the radium emanation through a tube filled with cocoanut charcoal, and was surprised to find that the emanation was completely absorbed by it. If a slow current of air, mixed with the emanation of radium, thorium, or actinium, is passed through a tube filled with charcoal, the issuing gas is completely deprived of emanation. This occurs at ordinary temperatures, and there is no necessity for initial cooling of the charcoal.

Impressed by these interesting observations of Rutherford, I at once thought that here was a certain and practical means of utilizing the emanations of radium and other radioactive salts, internally as well as externally, and a practical method of testing the therapeutic value of emanation treatment in various diseases. For a long time the medical profession has felt that the administration of radioactive solutions internally might be followed by pronounced beneficial results in certain diseases, and many efforts have been made to induce radioactivity in water, but only with partial success.

Dr. William James Morton of New York has done much work along this line and has finally decided that the best method of producing radioactive water is to immerse 50 to 100 pounds of a high-grade pitchblende in a vessel of water and has found that the measure of radioactivity of this water is about one-tenth to one-half that of metallic uranium; a very low degree of radioactivity. He dispenses this water to patients who are taking *x*-ray or radium treatment and claims to have cured in eighteen days a man suffering with a small rodent ulcer of the face by the administration of this water and small doses of bisulphate of quinin. The rate of decay of the radioactivity of water, however produced, is very rapid, falling to one-half in a few hours and no trace remaining after a few days.

Since the spring of 1906 I have been occasionally using water prepared in the same way, but can not claim to have observed any pronounced results following its administration. A recent report from the Randal-Morgan Laboratory of Physics of the University of Pennsylvania on the measure of activity of this water gives the following figures:

The water was sent to the laboratory on March 29, 1909.

March	29,	activity = 0.1	of uranium disc.
March	30,	activity = 0.11	of uranium disc.
March	31,	activity = 0.1	of uranium disc.
April	2,	activity = 0.07	of uranium disc.
April	6,	activity = 0.03	of uranium disc.

It is now generally admitted that the healing and curative properties of many well-known springs is due to the radioactivity of the waters and not to the salts

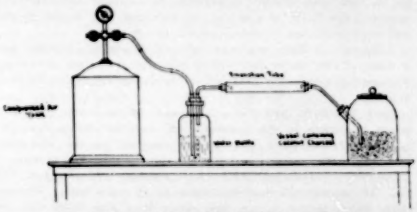

Fig. 1.—Apparatus used in original experiment.

which they may contain. No matter how carefully reproduced artificially, they have not the same therapeutic value, and, even when the original water is shipped from the source of supply, it loses its efficacy. We now know that this is due to the fact that the radioactivity is lost in a few days.

The radioactivity of all spring waters and of radioactive water artificially produced by any method, such as that of Morton, is due to the amount of emanation the water is able to absorb. We know that water will absorb a very small amount of emanation and is able to retain it for but a short time. If, therefore, we can find any substance which can be administered internally and which will absorb and retain all the emanation from a given quantity of a radioactive salt, it seems to me that a great advance will have been made and that we shall be in a far better position than we have ever been before to observe the effect of radioactivity on metabolism and to note its therapeutic value.

Acting on the hint obtained from Rutherford's letter above referred to, on Feb. 19, 1909, I started my first experiment.

Through the courtesy of Powers-Weightman-Rosengarten Company of Philadelphia, I was supplied with a quantity of purified cocoanut charcoal. I had an emanation tube made by H. Lieber of New York. This is a celluloid tube about 8 inches long and ¾ inch in

* Read before the Maine Medical Association, at the Fifty-seventh Annual Meeting, held at Portland, June 16-17, 1909.

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diameter, coated on the inside with a collodion solution containing 1 mgm. of strong radium bromid. Through this tube I passed a slow current of air into a porcelain vessel containing a quantity of cocoanut charcoal (Fig. 1). I found the charcoal to be strongly radioactive, discharging my electroscope more rapidly than would a specimen of high-grade pitchblende ore. I then spread a quantity of this charcoal over a key on an *x*-ray plate and obtained a very strong picture of the key after an exposure of four days (Fig 2). As a control I tested untreated charcoal on the electroscope and on an *x*-ray plate, with negative results.

Fig. 2.—Radiograph of key obtained by exposure to radioactive charcoal for four days.

I now felt that it was important to obtain accurate and reliable measurements of the degree of radioactivity to which cocoanut charcoal could be raised and its rate of decay, and I therefore applied to Prof. Arthur W. Goodspeed of the University of Pennsylvania, at whose request Mr. D. H. Kabakjian, of the Randal-Morgan Laboratory of Physics of that university, kindly consented to undertake the work. I supplied Mr. Kabakjian with 1 gm. of 1,000 radioactive radium chlorid and requested him to place this in solution and pass a current of air through it into cocoanut charcoal and measure its radioactivity and rate of decay. I herewith submit his report.

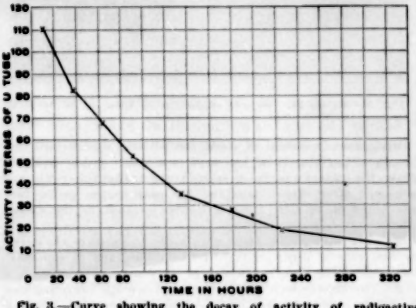

Fig. 3.—Curve showing the decay of activity of radioactive charcoal in sealed tubes.

MEASUREMENTS ON THE ACTIVITY OF COCOANUT CHARCOAL MADE ACTIVE BY ABSORBING RADIUM EMANATION

PREPARATION OF THE ACTIVE CHARCOAL

About 12 gm. of powdered charcoal were divided between two U-tubes, which were connected with each other and also with an aspirator.

One gram of radium chlorid of 1,000 activity was put in a test-tube. Through one of the holes of the two-holed stopper of this test-tube a thistle-tube was introduced which almost touched the bottom, while another glass tube made connections at the top with the U-tubes. A little water was put into the test-tube, just enough to dissolve the radium chlorid, and the aspirator was regulated so as to draw a very slow current of air through the solution (of the radium chlorid) and the U-tubes containing the charcoal. This was kept on for three hours.

The charcoal thus prepared was divided into twelve small tubes and the tubes were sealed. The tubes were opened one at a time at various intervals and their activity compared with the activity of a standard uranium oxid disc.[1] The measurements were made by means of a Dolezalek electrometer, the needle of which was kept charged to 98 to 105 volts, during different measurements, the voltage remaining constant during each particular measurement. The same difference of potential was also applied between the plates of the testing apparatus.

It was found by experiment that freshly prepared charcoal gives out emanation under ordinary conditions which, diffusing into the testing apparatus, greatly interfered with the accuracy of the measurements; for this reason the first two or three readings, often taken in less than two minutes, were regarded as more reliable.

Fig. 4.—March 24 one-half of this plate was exposed to the action of about 1 gm. of charcoal of about 10 activity, spread on a thin sheet of paper, while on the other part of the plate were placed six of the sealed tubes each containing 1 gm. of active charcoal. The difference in the shade of the negative clearly showed the results. The plate was exposed for ten hours; all the other plates were taken by means of the sealed tubes only.

To test the rate of diffusion of the emanation from such charcoal, kept in open vessels, samples were taken, having the same degree of activity with those in the sealed tubes and kept in an open test-tube, and the activity of this exposed specimen was measured under similar conditions. Also one of the samples was divided into two equal parts and one part kept in a sealed tube while the other was kept in a corked test-tube. The results of these measurements are given below:

(1) Wednesday, March 24.
Charge on the needle 98 volts.
Potential difference between the plates of the testing apparatus 98 volts.
12 hours after preparation.

URANIUM DISC B

Scale readings.	Time.
28	9:11:40
24	9:15:50
23	9:16:00

Time occupied in passing over 1 cm., $t = 64$ seconds.

1. The disc which is used as a standard of comparison in all subsequent measurements is a brass disc 6.7 cm. in diameter coated with a thin uniform layer of uranium oxid. Measurements of activity of water or of charcoal were made on similar shallow dishes or discs.

ACTIVE CHARCOAL TUBE 1

Scale readings. 29 - 10 Time. 10 seconds

Observed number of deflections in cm.	Total time in seconds.	Time of 1 cm. deflection.
19	10	10/19
19	12	12/19
19	12	12/19
19	10	10/19
19	11	11/19

Average time of 1 cm. deflection 11/19 second.
Activity compared with that of uranium disc
A=19/11 x 64=110

(2) Thursday, March 25, 8:45 a. m.
Uranium disc B. period of 1 cm. deflection, t = 71 seconds.

CHARCOAL TUBE 3

Total observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection.
19	16	16/19
19	16	16/19
19	15	15/19

Activity=19/16 x 71=84
A = 84

(3) Friday, March 26, 8:45 a. m.
U. disc, time of 1 cm. deflection, t = 65.

CHARCOAL TUBE 4

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection.
19	19	1 second.
19	18	18/19 second.
19	16	16/19 second.

Average 18/19. Activity = 19/18 x 65 = 69. A = 69.

(4) Saturday, March 27, 10 a. m.
U. disc, time of 1 cm. deflection, t=63.

CHARCOAL TUBE 5

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection.
19	24	24/19
19	23	23/19
19	23	23/19
19	24	24/19
	Average	23.5/19

Activity=19/23.5 x 63=51
A = 51

(5) Monday, March 29, 9:30 a. m.
U. disc, time of 1 cm. deflection, t = 60 seconds.

CHARCOAL TUBE 6

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection.
20	34	17/10
10	17	17/10
20	35	17.5/10
10	17	17/10
	Average	17/10

Activity = 10/17 x 60 = 35.3
A = 35.3

(6) Wednesday, March 31, 8:30 a. m.
U. disc time of 1 cm. deflection, t = 54 seconds.

CHARCOAL TUBE 7

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection in seconds.
20	36	1.8
20	37	1.85
10	18	1.8
20	39	1.95
	Average	1.85

Activity = 10/18.5 x 54 = 29
A = 29

(7) Friday, April 2, 8 a. m.
U. disc, time of 1 cm. deflection, t = 60 seconds.

CHARCOAL TUBE 8

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection.
5	15	3
10	30	3
15	45	3
5	15	3
10	30	3

Activity = 1/3 x 60 = 20
A = 20

(8) Tuesday, April 6, 9 a. m.
U. disc, time of 1 cm. deflection, t = 66 seconds.

CHARCOAL TUBE 9

Observed deflection in cm.	Total time in seconds.	Time of 1 cm. deflection in seconds.
5	30	6
10	60	6
15	85	5.7
20	120	6

Activity = 1/6 x 66 = 11
A = 11

ACTIVITY OF THE CHARCOAL IN THE OPEN TEST-TUBE IN TERMS OF U. DISC STANDARD

Specimen having an activity of 110, of U. disc.

24 hours after exposure, Activity = 11
48 hours after exposure, Activity = 7.8
72 hours after exposure, Activity = 6.6
7 days after exposure, Activity = 0.6
9 days after exposure, Activity = .9
13 days after exposure, Activity = .4

We see from the figures given that charcoal powder made radioactive by absorbing radium emanation when kept in sealed glass tubes loses its activity slowly, owing to the decay of the emanation absorbed. On examining the curve of decay of activity of such charcoal it is seen that the shape of the curve is not unlike that of the decay curve of the emanation itself. The fact that it reaches the half value in less than four days may probably be explained by supposing that the charcoal so enclosed (probably) gives out some of the emanation absorbed, which diffuses into the glass tube, thereby diminishing its activity. The figures given above show that if the charcoal is kept in an open test-tube instead of sealed tubes, the loss of activity is very rapid and falls to about one-tenth of its original value in twenty-four hours, if the powder is well exposed, (*i. e.*, when the depth of a layer of powder is not greater than the exposed surface).

In thirteen days the activity has fallen to about 2.36 per cent. of its original activity.

Fig. 5.—March 27. Objects exposed from 10 a. m. to 10 p. m. Exposure twelve hours.

One gram of charcoal of about 100 activity was divided into two equal parts and one was kept in a small corked test-tube while the other was in a sealed tube. Their activity was measured after fifteen days and the part in the sealed tube was found to be four times as active as that in the corked tube.

Several photographic tests were made to measure the activity and rate of decay of these sealed tubes, and of the charcoal itself. The results are seen in the illustrations, Figures 4 to 6. The objects seen on the negatives are one brass and one steel key, one cent piece and a piece of plate glass about 2 mm. in thickness.

Attention is called to the fact that the charcoal in the sealed tubes is radioactive at the end of sixteen days.

It will be seen from this report that by a very simple method and by the use of weak radium, cocoanut charcoal can be raised to a very high grade of radioactivity. Whereas water can be raised to only a fraction of the radioactivity of uranium oxid, which at the present time is taken as the unit of radioactivity, cocoanut charcoal, according to this report, can be raised to 110 times the radioactivity of uranium oxid. And, whereas water loses its radioactivity entirely in a few days, co-

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coanut charcoal retains a radioactivity above ten times that of uranium oxid for more than thirteen days. Subsequent experiments have shown that we can raise the charcoal to 160 times the radioactivity of uranium oxid.

In connection with this report it may be of interest to quote from an article[2] on "The Absorption of Radioactive Emanations by Charcoal," by R. W. Boyle, communicated by Prof. E. Rutherford:

The experiments of Sir James Dewar in 1903 drew attention to the property possessed by the charcoal of cocoanut of absorbing gases in a remarkable degree. Since then this property has been investigated by several experimenters[3] and has been applied by Sir William Ramsay in separating the inert gases helium and neon from the air, and measuring the quantities in which they exist in the atmosphere. The results in the papers mentioned below may be summarized as follows:

1. The absorption of gases by cocoanut charcoal is greatly increased by lowering the temperature of the charcoal.

2. The charcoal has a greater affinity for some gases than for others, there being something of the nature of a selection absorption.

3. In consequence of this property, it is possible to separate from one another, in some degree, the constituents of a mixed gas. Of the inert gases of the argon family, argon is absorbed in about the same degree as ordinary gases, but helium and neon in a much less degree, and helium less than neon.

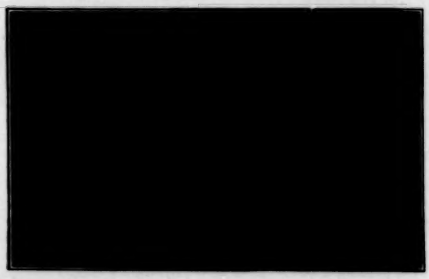

Fig. 6.—April 9. Objects exposed twenty hours.

4. The absorption is also influenced by the pressure of the gas in contact with the charcoal, the pressure concentration curves varying in a regular manner with the temperature.

Boyle then refers to Rutherford's letter to *Nature* above mentioned and states that he pointed out that this property of cocoanut charcoal also holds for the radioactive emanations. Experimenting with radium and thorium emanation, Boyle found that in the case of charcoal in granulated form the amount of absorption depends on (a) the nature of the charcoal, (b) the speed of the air-current through the absorbent, (c) the amount of charcoal surface exposed to the emanation, and (d) the temperature of the charcoal.

He concludes by stating that the percentage of absorption of thorium emanation by means of charcoal (1) depends on the nature of the charcoal used, being greatest for cocoanut charcoal, intermediate for animal, and least for wood charcoal; (2) is decreased by increasing the velocity of the gas-current which conducts the emanation through the charcoal; (3) is increased by increasing the charcoal absorbing surface, and (4) is dependent on the temperature, following the law of ordinary gases, viz., that a lowering of the temperature of the charcoal causes an increase and a raising of the temperature a decrease in the amount of absorption.

It takes about two or three hours to exhaust all the emanations from 1 gm. of 1,000 radioactive radium.[4] Before the radium can be utilized again the solution must be evaporated to dryness and the radium must be allowed to rest for about ten or fourteen days before it has recovered itself sufficiently to give off its full quota of emanation. The amount of charcoal which can be charged at any one time has not been accurately determined, but it will probably depend on the degree of radioactivity desired. I have been able to obtain on one charge sufficient charcoal of 140 activity to fill five small test-tubes, each containing enough to supply a patient for fourteen days, the dose being about as much as would cover a dime, taken three times a day. The tubes are stoppered with rubber corks and kept in a cool place, and the patients are instructed to replace the cork immediately after each dose. A fresh tube should be supplied about every ten days or two weeks. We have not found it necessary to prepare the charcoal either by cooling or heating. The current of air which carries the emanation into the charcoal is passed very

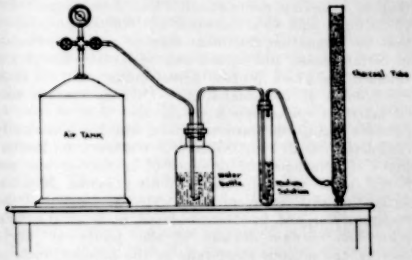

Fig. 7.—Author's method of charging cocoanut charcoal with radium emanation.

slowly and in order that the gas may pass over as large a surface of the charcoal as possible it is placed in a glass tube eighteen inches long having a diameter of half an inch. After this tube is charged the charcoal is quickly transferred to small test-tubes, which are stoppered immediately with rubber corks. The charcoal in these tubes has an initial radioactivity of 120 to 160 times that of the uranium disc and remains strongly radioactive for two weeks.

I therefore feel that I have developed a very easy and simple method of utilizing radioactive emanations internally as well as externally, for there is no reason why the charcoal should not be incorporated in ointments or gelatin or other solutions and applied in cases of leg ulcer, lupus, eczemas and other cutaneous lesions. The effect of the internal administration of such charcoal on metabolism and its value as a therapeutic agent in many diseases will require careful study and accurate observations in many carefully selected cases before any definite conclusions can be drawn.

The *Archives of the Roentgen Ray* for January, 1909, contains an abstract of a paper[5] by Dr. F. Nagelschmidt,

2. Boyle, R. W.: Phil. Mag., March, 1909.

3. Dewar: The Absorption and Therman Evolution of Gases Occluded in Charcoal of Low Temperature, Proc. Roy. Soc., lxxiv, 122; The Separation of the Most Volatile Gases from Air without Liquefaction, ibid., lxxiv, 122. Ramsay: The Determination of the Amount of Neon and Helium in Atmospheric Air, Proc. Roy. Soc., May 24, 1905. Travers: The Law of Distribution in the Case in which one of the Phases possesses Mechanical Rigidity, Absorption and Occlusion, Proc. Roy. Soc., July 21, 1905.

4. The time for exhausting all the emanation stored in radium depends on the velocity of air-current and probably is much less than three hours.

5. Nagelschmidt, F.: Berl. klin Wchnschr., March 16, 1908.

of the Finsenklinik, Berlin, on the "Therapeutic Action of Radium Emanation." Mention is made of previous work by Lowenthal and by Laqueur. Lowenthal administered preparations containing radium emanations, which he found useful in articular rheumatism and chronic neuritis, while Laqueur worked with tablets containing an emanation salt, and it is stated that neither of them observed any ill effects apart from the ordinary reaction. The reaction referred to is probably the erythema which might follow the local application of the preparations. The quantity of radium emanation in Laqueur's emanosal tablets is said to be very small. The internal therapeutic dose is from 10,000 to 20,000 emanation units per diem, gradually increasing. For the bath 100,000 to 200,000 emanation units are given, the patient remaining in the water for half an hour. If reaction sets in the treatment must be intermitted.

Nagelschmidt's preparation appears to be entirely different. An insoluble salt of radium is enclosed in a parchment capsule and placed in water, which, he asserts, is thus kept charged with the radium emanation. He uses this water internally and externally by compresses and baths. It is stated in the abstract that, like Lowenthal, he has had satisfactory results in cases of muscular and articular rheumatism, in neuritis, in ozena and in catarrh. He did not observe the bath reaction in articular rheumatism. His doses began with 2,000 units and were increased to 10,000. He believes that the emanation treatment may be counter-indicated in certain cases, and cites a case of latent ulcer of the stomach, in which profuse hematemesis came on after eight doses of the emanation. This observation may be taken in connection with the fact that wounds of patients taking the Gastein waters, which are markedly radioactive, heal with difficulty. Contrary to Lowenthal's observations, the presence of emanation was not found in the urine and feces of his patients. It is asserted that this treatment is indicated in diseases of the respiratory organs, in arteriosclerosis, in rheumatic, subacute and chronic diseases of the joints or nerve sheaths, the mucous membrane or the muscles, such as are treated at Wiesbaden or Baden-Baden, and that ozena, from whatever cause, is amenable to the emanation without any further treatment.

The class of cases in which I am inclined to test the value of this agent is that of chronic diseases which do not yield to our present methods of treatment, such as chronic gastritis or duodenal or intestinal ulcers, tuberculous ulceration of the intestine, various forms of functional diseases of the stomach or intestine, carcinoma of the stomach or esophagus, chronic muscular or articular rheumatism, neuritis, arteriosclerosis, certain general skin diseases, such as psoriasis and the eczemas, all forms of tuberculosis and in general debility after wasting diseases, in which the agent may be used as a tonic.

In addition to this, since the same rays are given off from the emanation as are obtained from radium itself we may find that the same therapeutic effects follow the local application of celluloid tubes filled with cocoanut charcoal in which the emanation is captured, as follow the local application of a tube or capsule containing radium. The potency of such a tube will, of course, diminish from day to day, but with improved methods will last long enough to allow of several treatments in a given case, when a new tube can be obtained from the source of supply.

6. The Journal A. M. A., Dec. 19, 1908, p. 2173.

In conclusion I beg to submit the following observations for the consideration of the medical profession:

1. Cocoanut charcoal is an inert substance and can be administered freely internally.

2. Cocoanut charcoal will absorb and retain the emanation of radium and, when treated by my method, can be raised to a very high degree of radioactivity compared to water—namely, from 200 to 300 times the radioactivity of the most radioactive water.

3. It can be prepared with but small expense. The same radium can be used over and over again indefinitely; none of the radium need be lost.

4. The charcoal will retain its radioactivity for at least two weeks and the method of administration is simple.

5. The beneficial effects of radioactive spring waters in many diseases and the results obtained abroad by the administration of weak emanation preparations warrants the belief that in this highly radioactive charcoal we have an agent the use of which will be followed by the same if not better results.

6. The local application of emanation cocoanut charcoal in tubes or capsules or incorporated in ointments or solutions is worthy of trial.

1731 Pine street.

Clinical Notes

ASEPTIC MITTENS

FRANKLIN BRADY, M.D.
Surgeon to Roosevelt Hospital
PHILADELPHIA

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After scrubbing the hands and arms, preparatory to operative or obstetric work, it is important to keep them clean. Frequently, I have seen an operator or his assistant, or both, clean the hands and arms thoroughly, then, while waiting for the patient to be anesthetized, walk around the room with their hands by their sides, brushed by a passing nurse's apron or a physician's coat.

To overcome this difficulty, I introduced into my operating room, fifteen years ago, what I call "mittens," which are nothing more than bags of double thickness. These mittens are made of canton flannel and are in

View showing the way the aseptic mittens protect the hands after sterilization.

two sizes, short and long. When finished the short ones measure about 6 by 13 inches, the long ones 6 by 19 inches.

They are made as follows: For the short mittens, cut two pieces, 14 by 14 inches, and fold them in the center so as to leave the fleecy sides out. Stitch across the end and up one side; this will make two bags 7 by 14 inches.

One bag should now be turned fleecy side in and the other bag inserted into it, so that the fleecy sides are in contact. The raw edges are now turned in and the two bags stitched together, giving a bag of double thickness. To make the long mittens, two pieces 14 by 20 inches are cut and folded in the long axis and stitched as described above. The sizes I have given are those I find most convenient.

With a little practice one can, without soiling the hands, do a great deal with the mittens on: unpin packages of dressings, move tables or chairs; if necessary, assist in arranging the patient, etc. Care must be taken not to get the mittens damp, because the dampness, passing through the mitten, will carry micro-organisms through to the hands.

The reason for making them of canton flannel is that it is thick, and dirt will not pass through as quickly as it would if made of muslin or other thin material. They are made of double thickness so that if by any means a little dirt should pass through the one thickness you are guarded by the second.

The short mittens are worn when it is important to have only the hands and the lower parts of the arms clean. It is always important to clean the arms above where the top of the mitten comes; otherwise the top edge would become soiled and in slipping it off and on would soil the hands. When ready to remove the mittens let them slide off the hands in such a way that if it is necessary to use them again they need not be picked up, but the hands simply thrust into them. Care should be taken to put them where the ends will not be brushed by those passing; otherwise the ends become soiled and soil the hands and arms as they are put on.

My method of sterilizing the mittens is the same as that employed in sterilizing towels. The short mittens are not folded, the long ones are folded once, they are wrapped in double thickness of unbleached muslin or cotton toweling and pinned, having a tag marked "short mittens" or "long mittens" as the case may be.

PROTEIN FEVER: THE PRODUCTION OF A CONTINUED FEVER BY REPEATED INJECTIONS OF PROTEIN

A PRELIMINARY NOTE

VICTOR C. VAUGHAN, M.D.

SYBIL MAY WHEELER, PH.D.

AND

WILLIAM F. GIDLEY, B.S.

ANN ARBOR, MICH.

The purpose of this paper is to make a short preliminary report on some experiments in which we are now engaged. The work done in the hygienic laboratory of the University of Michigan during the past ten years in the study of the cleavage products of proteins, bacterial, vegetable and animal, has, in our opinion, given us quite a new point of view from which to study the infectious diseases. We have shown that all the true proteins which we have investigated, now more than thirty in kind and from diverse sources, may be split up into poisonous and non-poisonous proteins or into toxophors and haptophors. The toxophor group seems to be the same so far as its effects on animals are concerned, whatever the protein from which it is derived. Egg-white contains the same poison, physiologically at least, as that found in the typhoid bacillus, and if egg-white could grow and multiply in the animal body it would, as a result of such growth and subsequent cleavage, be just as deadly as the bacilli of the infectious disease. When a man drinks water containing typhoid bacilli and proves susceptible he does not immediately manifest symptoms of this disease. There is a period of incubation, which in typhoid fever is about ten days. During this time the bacilli are multiplying in the man's body in great numbers and still the man has no warning of their presence. Instead he often feels quite well during this period of incubation. We must, therefore, conclude that it is not the growth and multiplication of the bacilli directly that cause the disease. While growing and multiplying in the body the typhoid bacilli are converting the proteins of the man into bacterial proteins. They are converting normal and native proteins into abnormal and foreign proteins, and this process continues for about ten days before the man feels ill or the first symptoms of the disease develop. What new factor is it, then, that appears, closes the period of incubation and ushers in the disease? This new factor is the sensitization of the body to the foreign protein which has been introduced from without in the form of a few bacilli which have grown and multiplied by feeding on the proteins of the man's body. This sensitization consists in the development in certain cells, most probably connective tissue cells, of a specific proteolytic ferment which splits up the foreign proteins, existing as bacterial cells. It is a belated attempt on the part of the body to destroy the invader. The period of incubation is measured by the time necessary to develop this ferment, and it varies with the nature of the foreign protein and the species of animal invaded. We can not induce a continued fever in rabbits and guinea-pigs by inoculating them with the typhoid bacillus, because this protein sensitizes these animals within a few hours instead of a few days, and within a short time the animal is either dead or well. This is a condition like unto that which renders man immune to many bacteria. His cells are soon sensitized, and the invading organism is killed before it has time to multiply and store up enough poison to kill him. We have shown that it is the non-poisonous portion of the protein molecule or its haptophor that sensitizes the animal or leads to the development of the specific ferment. This is a brief statement of the conclusions which we have reached from our studies of the proteins and their cleavage products and their relation to the infectious diseases. We are quite aware of the fact that our views have not met general acceptance, and consequently we are glad to present herewith what we believe to be a marked confirmation of our teachings.

It occurred to us that if the above given ideas be correct we should be able to induce in animals a continued fever by repeated subcutaneous injections of a soluble foreign protein. We have done this with bacterial proteins, but, since vitalistic dogmas cling so closely, we intend to present herewith an illustration of the results that we have obtained by repeated subcutaneous injections of egg-white dilutions in rabbits. The whites of fresh eggs have been diluted with an equal volume of 0.5 per cent. phenol solution.

Table 1 is self-explanatory, and the record is strikingly similar to one for typhoid fever. We have here a condition practically identical with an infectious fever and yet without any infection. Fever results when any foreign protein finds its way into the blood and the body becomes sensitized to it and begins to split it up. The foreign protein may be from the animal's own body. The subcutaneous injection of solutions of silver nitrate or other destructive chemical agents causes fever by de-

TABLE 1.—RABBIT RECEIVING 1:1 EGG ALBUMIN (NOT FILTERED) SUBCUTANEOUSLY EVERY 2 HOURS IN AMOUNT INDICATED BELOW. URINE COLLECTED AND WEIGHT TAKEN AT 1 P. M. URINE FILTERED THROUGH PAPER

1909 Date.	Weight.	Amt. Urine.	Sp. Gr. with Pic. nometer.	% Ash.	% N.	Temperatures. 7	9	11	1	3	5	7	9	Remarks.
5/20	....	...	.....	....	....	.....	.....	.....	102.5	.....	102.2	.....	.....	Normal Temperature.
5/21	....	...	.....	....	....	.....	102.1	.....	102.0	.....	102.3	.....	.....	Normal Temperature.
5/22	....	...	.....	....	....	.....	101.9	.....	102.3	.....	102.5	.....	.....	Normal Temperature.
5/23	....	...	.....	....	....	.....	102.0	.....	102.4	.....	.....	.....	.....	Normal Temperature.
5/24	....	...	.....	....	....	.....	101.8	.....	102.0	.....	101.8	.....	.....	Normal Temperature.
5/25	....	...	.....	....	....	.....	102.1	.....	102.2	.....	102.2	.....	.....	Normal Temperature.
5/26	2525	...	.....	....	....	.....	102.1	102.3	102.3	102.3	102.1	101.8	101.7	Normal Temperature.
									2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	
5/27	2450	260	1.0106	1.61	.16	101.4	101.6	102.4	101.8	101.7	101.3	101.4	101.9	
						2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	
5/28	2440	125	1.0124	2.12	.15	101.1	101.2	101.5	102.5	.....	102.2	103.2	102.6	
						2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	
5/29	2380	54	.....	.....	.16?	102.7	102.6	102.4	103.6	103.9	104.2	104.0	103.4	
							2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	
5/30	2330	275	1.0110	1.73	.19	.....	103.0	103.5	104.0	104.0	103.8	103.8	103.2	
						2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	2 c.c.	
5/31	2270	266	1.0130	2.41	.23	103.2	103.8	103.5	104.0	103.7	103.4	103.3	103.0	
						2 c.c.	2 c.c.	2 c.c.	2 c.c.	4 c.c.	4 c.c.	4 c.c.	4 c.c.	Forty doses of 2 c.c. each.
6/1	2355	104	1.0294	3.75	.53	103.0	103.3	103.4	103.2	103.8	103.9	104.0	105.2	Much albumin present in urine as shown by heat and HNO_3.
6/2	2335	370	1.0114	1.89	.16	103.8	103.6	103.2	106.2	106.0	104.0	104.1	105.0	
						4 c.c.	4 c.c.	4 c.c.	4 c.c.	4 c.c.	4 c.c.	4 c.c.	4 c.c.	Twenty doses of 4 c.c. each.
6/3	2320	290	1.0093	1.26	.30	103.4	103.2	103.0	103.0	103.6	103.2	103.5	103.6	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/4	2290	155	1.0101	1.55	.28	103.1	103.2	103.2	103.6	103.6	103.6	103.6	104.3	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/5	2290	225	1.0129	1.20	.42	105.4	105.7	105.5	106.0	106.0	105.6	106.1	106.4	
							8 c.c.		8 c.c.		8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/6	2250	95	1.0148	1.71	.56	.....	105.6	.....	106.0	.....	105.9	105.6	105.3	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/7	2320	100	1.0165	2.00	.66	105.2	104.7	104.9	104.7	103.4	105.6	105.2	105.2	Casts, mucin, phosphates and carbonates in heavy ppt.
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/8	2350	52	1.0267	2.02	2.53	105.5	105.4	104.9	105.2	104.9	105.3	104.9	104.9	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/9	2355	115	1.0134	1.56	1.00	105.3	105.2	105.1	105.1	104.0	105.4	105.8	105.8	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.		8 c.c.	Much albumin in urine.
6/10	2345	155	1.0106	1.66	.56	105.4	104.8	104.8	104.8	104.8	104.9	.....	105.3	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Much albumin in urine.
6/11	2230	165	1.0100	1.64	.60	105.2	104.8	105.2	105.7	105.8	105.7	105.8	105.8	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.		Albumin in urine.
6/12	2330	95	1.0170	1.56	.92	105.3	105.0	104.8	105.6	108.0	108.0	105.8	.....	
							8 c.c.		8 c.c.	8 c.c.		8 c.c.		Albumin in urine.
6/13	2280	190	1.0140	1.81	.54	.....	104.8	.....	105.0	104.9	.....	104.7	.....	
						8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	8 c.c.	Albumin in urine.
6/14	2250	115	1.0148	1.15	.98	104.5	104.7	104.7	104.7	* 104.9	105.4	105.6	105.4	
						8 c.c.	8 c.c.	Doses Stopped.						
6/15	2180	140	1.0179	2.60	.65	105.6	105.5	105.1	105.4	105.3	105.2	105.2	105.2	Eighty-two doses of 8 c.c. each. 816 c.c. given in all.
6/16	2135	155	1.0194	2.99	.66	104.2	104.8	104.1	104.1	104.0	104.0	103.9	104.1	Albumin in urine.
6/17	2080	170	1.0139	2.76	.50	104.2	104.6	104.1	103.6	103.9	103.4	103.4	103.2	Albumin in urine.
6/18	2040	205	1.0184	2.10	.43	103.0	103.2	103.2	103.4	104.1	103.6	103.8	103.5	Albumin in urine.
6/19	1960	150	1.0198	2.80	.44	103.3	103.0	103.7	103.0	103.0	103.4	103.1	102.8	Albumin in urine.
6/20	1880	22	.....	....	2.90	.....	102.8	.....	102.9	.....	103.0	102.7	.....	Albumin in urine.
6/21	1850	10	.....	....	....	102.6	102.6	102.5	102.3	102.2	102.0	101.8	101.8	Albumin in urine.
6/22	1885	55	.....	....	....	.....	102.4	.....	102.8	.....	101.5	.....	.....	Albumin in urine.
6/23	1900	...	.....	....	....	.....	101.5	.....	.....	.....	101.5	.....	.....	Albumin growing less.
6/24	1980	...	.....	....	....	.....	101.6	.....	.....	.....	101.5	.....	.....	Only a trace.
6/25	2070	...	.....	....	....	.....	101.5	.....	.....	.....	101.6	.....	.....	Only a trace.
6/26	2120	...	.....	....	....	.....	101.5	.....	.....	.....	101.5	.....	.....	No albumin.

TABLE 2.—RABBIT RECEIVES 200 MG. TYPHOID POISON (FILTERED, BUT UNNEUTRALIZED), SUBCUTANEOUSLY, AS SHOWN BELOW. WEIGHT AND URINE TAKEN IN MORNINGS

1909 Date.	Weight.	Amt. Urine.	Sp. Gr. with Pic.	% Ash.	% N.	Temperatures. 9	11	1	3	5	7	9	10	Remarks.
4/26	2820	...	.....	....	....	.....	103.4	102.7	102.8	102.8	103.1	103.0	.....	
						200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	
						Slight diarrhea throughout afternoon.								
4/27	2805	*325	1.0084	1.23	.22	102.8	102.7	102.4	102.2	102.9	103.2	103.9	.....	
						200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	
4/28	2550	160	1.0092	1.38	.37	105.5	104.6	104.6	104.6	104.5	105.5	105.5	105.8	
						200 mg.†								
4/29	2550	35	1.0263	3.12	2.20	105.5	.....	.....	.....	.....	.....	.....	.....	

* Normal amount of urine for 21 hours.
† Died within a minute after this dose.

TABLE 3.—RABBIT RECEIVES 200 MG. TYPHOID POISON (FILTERED, BUT UNNEUTRALIZED) SUBCUTANEOUSLY, AS SHOWN BELOW. WEIGHT AND URINE TAKEN IN MORNINGS

1909. Date.	Amt. Urine.	Sp. Gr. with Pic.	% Ash.	% N.	Temperatures. 9	11	1	3	5	7	9	Weight.	Remarks.
4/21	...	.....	....	....	.....	.....	.....	102.2	102.2	.....	.....	....	Normal temperature at 7 and 9.
					200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.		
4/22	*125	1.0105	1.60	.30	102.0	100.9	101.3	102.8	103.5	104.4	103.1	2440	
					200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.		
4/23	255	1.0044	.61	.18	105.8	105.4	105.0	104.2	103.4	103.2	103.2	2255	
					200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.	200 mg.		
4/24	60	1.0089	1.04	.55	103.2	103.8	104.0	103.6	101.5	98.4	‡	2080	Total amount of toxin given, 4 gm.
4/25	†15(?)	1.0112	.70	1.22	.....	.....	.....	.....	.....	.....	.....	....	

* Normal amount of urine for 16 hours.
† Normal amount of urine for 10 hours.
‡ Died at 7:05.

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stroying the tissue with which it comes in contact. An injury that crushes and destroys tissue without breaking the skin or being accompanied by bacterial infection causes fever because the broken-down tissue is absorbed into the circulation. Fever, more or less marked, accompanies perfectly aseptic operations in which tissue is destroyed and left in the body. In the intermittent fevers the elevation of temperature is simultaneous with or immediately subsequent to the discharge of protein into the blood. In the infectious diseases the primary, multiplying, invading cell supplies and maintains the foreign protein. In our experiments we have kept up the supply of foreign protein by the frequency of our injections.

There are certain things in Table 1 to which we may call attention. The loss in weight is gradual, with some slight fluctuations; it continued for some six days after the injections were discontinued, after which it gradually increased. The amount of urine is quite variable, but averages much less than normal, as it does in typhoid fever in man. The elimination of nitrogen is increased as it is in the fevers to which man is susceptible. The temperature of the fore period varied from 101.8 to 102.5. The first injection of egg-white was made at 1 p. m. May 27. During the next twenty-four hours the temperature kept below the normal average. It is noticeable that when the dose was increased from 2 c.c. to 4 c.c. there was a marked rise at the end of twenty-two hours. When this dose was again doubled, no marked effect on the temperature was seen until the next day. If one will follow down one of the morning hours he will see the gradual rise in the morning temperature so generally observed in the development of typhoid fever. Equally

TABLE 4.—THIS RABBIT RECEIVED SUBCUTANEOUSLY 200 MG. TYPHOID TOXIN (FILTERED, NEUTRALIZED, REFILTERED) EVERY 2 HOURS, BEGINNING 5/4/09. URINE AND WEIGHT TAKEN AT 1 P. M.
117 DOSES GIVEN IN 15 DAYS (23.4 GM. TYPHOID TOXIN)

Date.	Cage.	Wt.	Amt. Urine.	Sp. Gr. with Pic.	% Ash.	% N.	Temperatures. 7	9	11	1	3	5	7	9	11	Remarks.
5/3	12	.....	.....	.....	.....	.....	.....	.....	.....	102.1	102.3	102.8	102.9	103.4	.....	Carrot food.
5/4	12	2820	*215	1.0068	1.00	.32	102.4	102.9	102.7	D102.8	D102.3	D103.3	D103.8	D103.9	.....	Carrot food.
5/5	12	2785	100	1.0102	1.35	.59	D104.2	D104.9	D104.9	D105.5	D105.8	D105.8	D106.2	D105.6	.....	Carrot food.
5/6	12	2810	757	1.0122	1.80	.62	D104.9	D106.5	D106.0	D105.9	D104.9	D104.9	D105.8	D105.1	.....	Carrot food.
5/7	12	2825	22	1.0302	3.52	2.17	D104.4	D104.9	D105.4	D105.2	D104.4	D104.2	D104.6	D105.2	.....	Carrot food.
5/8	12	2780	52	1.0173	1.49	1.05	D104.2	D104.2	D104.2	D104.9	D104.5	D104.7	D105.5	D104.8	.....	Carrot food.
5/9	12	2770	60	1.0156	1.75	.41	D103.3	D103.2	D103.3	D104.1	D104.3	D104.6	D104.0	D104.4	.....	Carrot food.
5/10	12	2800	110	1.0114	1.30	.81	D103.3	D103.3	D104.6	D103.7	D103.8	D104.0	D105.2	D104.4	.....	Carrot food.
5/11	12	2770	98	1.0120	1.42	.61	D104.0	D104.6	D104.6	D104.3	D104.8	D105.0	D104.8	D104.8	.....	Carrot food.
5/12	12	2750	136	1.0100	1.15	.65	D104.1	D105.0	D104.3	D104.6	D105.5	D105.1	D104.7	.....	D104.4	Carrot food.
5/13	12	2725	150	1.0114	1.42	.58	D103.8	D104.6	D104.6	D104.5	D105.0	D105.3	D105.3	.....	D104.6	Carrot food.
5/14	12	2670	140	1.0103	1.69	.70	D104.0	D103.8	D105.1	D104.9	D105.0	D104.8	D104.8	.....	D104.5	Carrot food.
5/15	12	2660	135	1.0107	1.48	.64	D104.0	D103.7	D104.1	D104.0	D104.7	D104.7	D104.3	.....	D104.5	Carrot food.
5/16	12	2670	158	1.0087	1.66	.43	D103.7	D104.3	D103.4	D103.5	D103.8	D104.7	D104.3	D103.8	.....	Carrot food.
5/17	12	2595	256	1.0054	1.06	.39	D103.7	D104.3	D104.5	D104.4	D104.4	D104.7	D104.5	D104.3	.....	Carrot food.
5/18	12	2690	184	1.0107	1.31	.28	D103.6	D104.0	D103.6	D104.2	D104.5	D104.0	D104.7	D104.4	.....	Dandelion food. 117 doses given. 23.4 gm. Ty. toxin.
5/19	12	2695	265	1.0106	1.19	.18	103.6	103.6	103.1	104.2	103.7	103.6	104.0	103.9	.....	Doses stopped.
5/20	12	2695	125	1.0153	2.43	.24	103.5	103.5	103.3	103.6	103.4	103.3	103.6	103.2	103.2	Dandelions.
5/21	12	2650	75	1.0159	2.24	.25	103.2	103.2	103.3	103.3	103.1	102.9	.....	103.3	102.8	Dandelions.
5/22	12	2680	76	1.0153	2.01	.36	103.0	102.8	102.8	102.8	103.0	103.2	.....	102.9	.....	Dandelions.
5/23	12	2540	.....	.....	.....	.....	.....	103.4	.....	103.1	.....	.....	.....	102.8	.....	Dandelions and crackers.
5/24	12	2555	†225	1.0119	1.69	.15	102.7	103.0	103.0	103.1	103.1	103.2	103.2	103.2	.....	Dandelions.
5/25	12	2650	210	1.0128	1.81	.36	102.9	103.1	103.2	103.7	103.8	103.8	103.4	103.3	.....	Dandelions.
5/26	12	2655	220	.....	.....	.....	103.1	103.3	103.6	.....	.....	.....	.....	.....	.....	Dandelions.
5/27	12	2660	160	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dandelions.
								Rabbit alive 6/22/09.								
5/28	12	2610	275	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dandelions.

* Amount of urine normal for 24 hours.
† For 48 hours.
D = Dose.

TABLE 5.—THIS RABBIT RECEIVED SUBCUTANEOUSLY 200 MG. TYPHOID TOXIN (FILTERED, NEUTRALIZED, REFILTERED) EVERY 4 HOURS, BEGINNING 4/30/09. URINE COLLECTED AND WEIGHT TAKEN EVERY MORNING. 80 DOSES GIVEN IN 19 DAYS (16 GM. TYPHOID TOXIN)

Date.	Cage.	Wt.	Amt. Urine.	Sp. Gr. with Pic.	% Ash.	% N.	Temperatures. 7	9	11	1	3	5	7	9	11	Remarks.
4/29	10	2750	.....	.....	.....	.....	.....	102.2	102.9	102.8	103.1	103.6	103.3	.....	.....	Carrot food.
4/30	10	2750	*250	1.0080	.92	.14	D102.4	103.1	D102.8	104.1	D104.3	105.3	D104.6	105.0	.....	Carrot food.
5/1	10	2560	245	1.0052	.77	.13	D104.7	105.3	D105.1	104.3	D104.7	104.2	D104.6	104.4	.....	Carrot food.
5/2	10	2610	460	1.0063	.70	.13	D104.2	104.2	D104.0	104.6	D103.8	103.8	D104.2	103.6	.....	Carrot food.
5/3	10	2560	350	1.0062	.92	.19	D103.3	103.8	D104.2	103.7	D104.0	104.2	D104.2	103.8	.....	Carrot food.
5/4	10	2555	270	1.0062	.90	.16	D103.6	103.5	D103.6	103.7	D103.7	104.2	D104.0	104.2	.....	Carrot food.
5/5	10	2575	215	1.0083	1.26	.24	D103.5	103.4	.....	103.8	D103.7	104.4	D105.1	104.5	.....	Carrot food.
5/6	10	2545	175	1.0075	1.13	.32	D103.4	103.3	D103.4	104.2	D104.9	105.0	D105.1	105.0	.....	Carrot food.
5/7	10	2605	166	1.0098	1.45	.26	D103.7	103.5	D103.6	104.1	D104.0	104.6	D104.4	104.7	.....	Carrot food.
5/8	10	2540	132	1.0091	1.21	.21	D103.3	103.6	D103.7	103.6	D104.4	104.2	D104.6	104.2	.....	Carrot food.
5/9	10	2567	240	1.0087	1.26	.19	D103.2	103.3	D103.5	103.4	D103.7	103.6	D104.2	103.4	.....	Carrot food.
5/10	10	2600	280	1.0081	1.17	.25	D103.6	103.4	D103.7	104.0	D104.5	104.2	D103.9	103.8	.....	Carrot food.
5/11	10	2530	260	1.0090	.95	.22	D103.1	103.2	D103.6	103.6	D103.7	104.2	D103.8	103.8	.....	Carrot food.
5/12	10	2570	295	1.0072	.87	.19	D103.6	103.6	D103.9	104.0	D103.7	104.4	D104.3	.....	D104.4	Carrot food.
5/13	10	2540	295	1.0078	.89	.21	D103.6	104.5	D103.8	104.4	D104.7	105.0	D104.6	.....	D104.6	Carrot food.
5/14	10	2505	149	1.0123	1.36	.27	D103.3	104.5	D104.0	104.3	D104.8	105.2	D104.9	.....	D104.7	Carrot food.
5/15	10	2660	255	1.0093	.96	.18	D103.2	103.8	D104.2	103.8	D104.2	104.3	D103.9	.....	D104.1	Carrot food.
5/16	10	2565	185	1.0108	1.82	.27	D103.5	103.8	D103.8	103.6	D103.7	103.9	D104.2	103.7	.....	Carrot food.
5/17	10	2580	280	1.0071	1.22	.22	D103.0	103.5	D103.4	103.9	D104.1	104.6	D104.0	104.5	.....	Carrot food.
5/18	10	2625	174	1.0129	1.91	.28	D103.4	103.7	D104.1	103.7	D104.1	104.2	D104.4	104.5	.....	Dandelion food and carrots.
5/19	10	2575	215	1.0133	2.16	.18	103.3	104.0	103.5	103.7	104.1	103.9	104.3	104.0	.....	Dandelion food only. Doses stopped.
5/20	10	2470	210	1.0121	1.91	.25	103.5	103.4	103.9	103.4	104.0	103.7	104.6	103.8	103.5	Dandelion food.
5/21	10	2490	108	1.0171	2.40	.41	103.3	103.2	103.2	103.3	103.6	103.1	.....	103.3	103.0	Dandelion food.
5/22	10	2460	44	1.0199	2.38	.74	103.2	103.2	103.4	103.8	103.7	103.7	.....	103.2	.....	Dandelion food.
5/23	10	2440	263	1.0119	1.67	.23	.....	103.0	.....	103.4	.....	.....	.....	102.8	.....	Dandelion food and crackers.
5/24	10	2340	46	1.0151	1.40	.72	102.6	102.9	103.2	103.3	103.3	103.5	103.3	103.0	.....	Dandelions.
5/25	10	2495	175	1.0118	1.36	.27	103.2	103.4	103.7	103.3	103.2	103.6	103.6	103.6	.....	Dandelions.
5/26	10	2480	270	1.0115	1.67	.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	
5/27	10	2520	220	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
								Rabbit alive 7/9/09.								
5/28	10	2495	210	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

* Urine normal in amount for 22 hours.
D = Dose.

striking is the fact that for the most part the highest temperature for the day falls in the afternoon. When the injections were discontinued the temperature gradually fell and remained somewhat below the normal, as is often observed in typhoid.

We were anxious to determine the nature of the albumin in the urine—whether it was some of the egg-albumin injected or came from the serum albumin of the animal's blood. In order to determine this we injected 2 c.c. of the filtered urine of June 18 intra-abdominally into each of five guinea-pigs for the purpose of sensitizing them to whatever proteins the urine might contain.

Twelve days later two of the pigs received intra-abdominally each 5 c.c. of egg-white dilution (with an equal volume of water); two others had each 5 c.c. of fresh serum from a rabbit, and the fifth had a mixture of 2.5 c.c. of each of these fluids. All the animals were found to be sensitized, thus showing the presence of both egg-white and serum protein in the urine of the febrile rabbit. It is worthy of note that, while these animals developed the three stages characteristic of protein sensitization, the second and third stages were unusually prolonged and less acute than those generally observed in sensitized guinea-pigs. Of the two treated with egg-white, one died at the end of two hours and the other fifteen minutes later. Of the two treated with rabbit serum one died at the end of one hour, while the other lived for three hours. The one that had the mixture of proteins developed the symptoms more promptly than any of the others, but did not die.

If less than a fatal dose of the poisonous group of a protein be injected into an animal, recovery is speedy and at the end of two hours the same dose may be repeated.

The effect of a single dose is to lower the temperature, but when repeated doses are employed a continued fever develops. Within a few days, however, the time depending on the size and frequency of the dose, the animal dies. The effects of the free, unneutralized poison are shown in Tables 2 and 3. In these the poisonous portion of the protein of the typhoid bacillus was used.

The fact that an animal recovers so speedily from only a little less than a fatal dose of the protein poison shows that this poison must be quickly neutralized in the animal body. We are inclined to the opinion that this neutralization is secured only by the destruction of the tissue of the animal body.

It was shown by V. C. Vaughan, Jr., some years ago, that the neutralization of the poisonous group of the protein molecule greatly reduces its toxicity. This led us to try repeated subcutaneous injections of the poisonous group from the typhoid protein after neutralizing it with sodium bicarbonate. The results of these injections are shown in Tables 4 and 5.

We think that these investigations show that fever results when a foreign protein is introduced into the blood. This foreign protein is not necessarily of bacterial origin, though under natural conditions this is usually the case in continued fevers. The fever results from the cleavage of the foreign protein and from the effect of its split products on the body tissue. The object that Nature seeks to accomplish in this process is the destruction of the foreign protein. The effect of the high temperature *per se* on the infected animal is slight. The ill effects, the wasting of tissue and death in which fever often results are due to the action of the protein poisons that are set free.

UNDIAGNOSTICATED BRAIN ABSCESS

F. DOWNING, M.D.
BALTIMORE

In THE JOURNAL of May 22, 1909, Dr. Eshner reported a case of undiagnosticated brain abscess. In a day when chiefly successes are given to the medical press I feel like congratulating the Doctor for his courage in publishing a failure, for as such much be regarded all cases which are undiagnosticated, or are wrongly diagnosticated.

Though it is embarrassing to report mistakes, the science of medicine is often materially promoted thereby and the fear of criticism arising from a pardonable failure of diagnosis should not prevent one from speaking of the undiagnosticated. For that reason a parallel case to Dr. Eshner's is submitted.

History.—X., male, aged 27, was admitted to St. Joseph's Hospital May 3, 1909, complaining of severe headache. There was nothing of note in his previous history except that he had had an otitis media in early life which gave him very little trouble. General health had always been good; no history of venereal infection of any kind. For the past two years he had been somewhat out of sorts, not positively sick, but not feeling quite himself. Occasionally during the past six months he complained of pain in the left ear. About March 10, 1909, he was taken with what was thought to be influenza and was sick about two weeks, during which he had an attack of unconsciousness lasting a few minutes. In the first week of April he again became sick with what was said to be "typhoid-pneumonia" and was under treatment in another hospital for three weeks. He left feeling rather weak but otherwise apparently well. About one week later he began to suffer pain in the head, and had another spell of unconsciousness which came on suddenly and lasted only a few minutes. No convulsions were noticed by the family and no paralysis observed after the attack. Two or three days later he had a third attack of unconsciousness. During the night of May 2 he suffered intensely with headache and was taken to St. Joseph's Hospital the following day complaining of great pain in the head, especially on the left side.

Examination.—Patient fairly well nourished; complexion sallow; tongue coated; breath fetid; appetite good; no rigidity of muscles of neck; no vomiting; no vertigo; but rather obstinate constipation. Abdomen negative; few scattered râles and dulness at base of both lungs posteriorly. Expectoration contained a few diplococci but no tubercle bacilli. Heart negative; pulse 60; temperature 98.4 F.; respiration, 20.

Urine: cloudy, alkaline, specific gravity 1,025, no albumin, slight amount of sugar; under microscope, few epithelial cells and triple phosphates.

Blood: Leucocytes, 18,200; differential counts, polymorphonuclear, 81; large mononuclear, 4; small mononuclear, 10; eosinophiles, 1; basophiles, 1; myelocytes, 3; number of cells counted, 337.

Eyes: Direct and consensual reflexes present but not so active as normal; surface of each disk raised, grayish-white, edges blurred and "fuzzy," veins enlarged and tortuous; no hemorrhages and no exudates in retina. Choked disk was somewhat more marked on left side. Central vision was good; there was no paralysis of the external ocular muscles and there was no nystagmus.

Ears: Right side showed evidence of previous otitis media which had fully healed with no impairment of hearing. On left side were a partly defective drum, little moisture in tympanum with faint odor, and slight impairment of hearing. No fistula, no sinking of posterior-superior wall, no tenderness about mastoid or along sigmoid groove or over the occipital protuberance.

Slight loss of power was observed in right hand and some little dragging of right foot. Patella reflex exaggerated at first on both sides, but absent after a few days in hospital; ankle clonus present on admission but absent one week later. Kernig sign present on both sides; Babinski sign present, also *tâche cérébrale;* areas of anesthesia over portions of right foot; no

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aphasia. Mental condition good; answered questions intelligently; was rather anxious about outcome of his illness.

Hospital History.—During his illness in the hospital the patient's chief complaint was headache. He vomited only once, had no chills, and never complained of vertigo. Potassium iodid had no effect. Two lumbar punctures drew no fluid whatever, though needle was clearly in spinal canal. Edema of optic nerve head increased only slightly, never became great, and examination of eye grounds three days before death showed no retinal hemorrhages. Central vision remained good up to two days before death. Temperature ranged from 95.4 F. to 100.5 F.; pulse from 60 to 110; respiration 16 to 24. For twelve days before death he would have several hours of coma alternating with periods of consciousness. The latter gradually becoming shorter, the periods of coma longer until 24 hours before dissolution, when deep coma set in. Death occurred May 25, 1909, on the twenty-second day of his residence in hospital.

Autopsy.—Brain with enveloping dura came out easily. There was no pus on outer or inner surfaces of dura. Vessels of pia on left hemisphere congested. There was discoloration with slight bulging of the cortex high up on left parietal lobe extending to the longitudinal fissure. Incision into this fluctuating area released from 6 to 8 ounces of foul-smelling pus. Abscess cavity involved the greater part of the parietal lobe and extended well down into the temperosphenoidal. The cortical wall of the abscess lay just posterior to the fissure of Rolando. No pus in any of the ventricles. Decided softness of brain tissue surrounding abscess cavity. Roof of petrous portion of temporal bone was found intact. No communicating channel between middle ear and abscess was made out. Mastoid and cerebral sinuses unfortunately were not opened. General section was not permitted.

The staff was divided in regard to diagnosis. Internists were for meningitis until this was negatived by lumbar puncture, the neurologist was for inoperable brain tumor, the otologist for brain abscess. In deference to the greater experience of the neurologist in intracranial affections, diagnosis of tumor prevailed. Headache, constipation, slight motor and sensory involvement on the right side and double choked disc were the chief symptoms. Abscess had probably existed for some time, patient's illness of March and April being due to this and not other causes. Although no direct route of suppuration was made out between middle ear and cerebral abscess, it is highly probable that the abscess was of otitic origin, infection occurring, if not by direct extension, by metastasis.

INGUINAL HERNIA OF THE BLADDER

H. E. RANDALL, M.D.
FLINT, MICH

Hernia of the bladder through the inguinal canal, while rare, is a condition that must be borne in mind when operating on any hernia, either femoral or inguinal. Failure to recognize this rarity has led to disastrous results. Cooley, in Keen's "System of Surgery," says that but three cases of hernia of the bladder were encountered in a series of over 1,900 cases of hernia in patients operated on at the Hospital for Ruptured and Crippled.

History.—Miss H., aged 20, first noticed a small bunch in the right inguinal region last April. This did not disappear and was painful at times, but she continued teaching school. The mass felt like a fatty growth. At times it was thought that an impulse on coughing could be felt and at other examinations no impulse on coughing could be detected. There were no bladder symptoms. Symptoms were similar to that of an enlarged tender gland.

Operation.—This was performed at Hurley Hospital, July 13, 1909. On cutting down to the mass it looked and felt like a lipoma except that the walls could be moved on each other as though there were a cavity in its center. The mass extended down into the inguinal canal. After separating the mass from the adhering structures it appeared as a diverticulum of the bowels. A sound passed into the bladder easily passed into this diverticulum, making the diagnosis of an extraperitoneal direct inguinal hernia of the bladder. The bladder was returned to the abdominal cavity and the abdominal wall closed with silk-worm gut sutures, with layer suturing with catgut.

The case of Justo is interesting because, after making a diagnosis of vesical hernia from the patient's symptoms, he cut into the fatty mass and opened the bladder because he was unable to distend this portion of the bladder by fluid, concluding that no vesical hernia existed.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1909," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(Continued from page 530)

IODONE SURGICAL DRESSING AND DUSTING POWDER—Pulvis Iodoni Compositus.—Iodone surgical dressing and dusting powder consists of four parts of iodone ($(C_8H_4C_2O_3)_2KI.I_2$), a periodide of phthalic acid anhydride and 96 parts pure sterile talcum.

Iodone is prepared by treating a solution of phthalic-acid anhydride in acetic ether, with a solution of iodine and potassium iodide, and crystallizing the product from suitable solvents.

Iodone occurs in the form of dark green prismatic crystals which melt with decomposition at 163° C. (325.4° F.). When freshly prepared it is odorless, but on standing, traces of iodone are liberated, giving it a faint odor of iodine. It is gradually decomposed into phthalic acid, iodine, and potassium iodide by water, in which the decomposition products dissolve until a saturated iodine potassium iodide solution results. Any excess of iodine remaining in contact with the supernatant liquid remains unchanged. Alcohol, chloroform, and ether decompose iodone, but more slowly than water. Iodone crystals are stable in dry air; exposed to damp air, they gradually liberate iodine.

When 0.1 Gm. iodone is heated in a crucible at not more than a dull red heat, the compound chars, iodine vapor is driven off, and a residue of white potassium iodide remains. At a bright red heat, the latter is dissipated, leaving no weighable residue (absence of metallic impurities).

About 0.1 Gm. iodone, accurately weighed, is allowed to react, with occasional agitation, with a solution of 1 Gm. potassium iodide in 50 c.c. water. At the end of 15-20 minutes the titration of this solution with tenth normal thiosulphate solution should indicate the presence of not less than 51.1 per cent. iodine.

Iodone surgical dressing and dusting powder, assayed by the above process, should yield not less than 2 per cent. of available iodine. (About 2.5 Gm. should be taken for the assay.)

Actions and Uses.—Like iodine, iodone is a potent germicide and stimulant to the processes of repair in wounds. It is said to be useful in all conditions in which the local use of iodine is indicated, also as an antiseptic dressing in wounds and all local affections.

Dosage.—Its employment as a surgical dressing and dusting powder should be regulated on the basis of its containing 2 per cent. of available iodine, slowly liberated on contact with the moisture of wound secretions, etc.

Manufactured by The Henry C. Blair Co., 800 Walnut St., Philadelphia, Pa.
U. S. patents applied for.

PEPTONE—Peptonum.—Peptonum (Pharm. Belgica., edit 3); Peptona Medicinalia (Pharm. Francaise, 1908).

Peptone is a product of the peptic or pancreatic digestion of albuminoid substances.

Peptone may be produced artificially as follows: Mince 1000 parts of lean beef freed from bone, etc., and mix it with 4000 parts of water, to this add a solution of 5 parts of pepsin in 1000 parts of water with 50 or 25 parts of hydrochloric acid. The mixture thus prepared is kept at a temperature not exceeding 50° C. (122° F.) until 10 Cc. of the filtrate or the addition of 1.5 Cc. of nitric acid in the cold no longer produces a precipitate. (Formation of a coagulum indicates incomplete peptonization.) The solution is then filtered, neutralized with sodium bicarbonate and evaporated to dryness in vacuo. It may be purified if necessary from adherent sodium chloride by dialysis or by precipitation by alcohol washing with ether and drying. By desiccating its concentrated solution upon plates peptone may be obtained in scales. (Brit. Codex.)

Peptone occurs as a white or yellowish-brown amorphous powder or in scales, with a somewhat cheesy but not unpleasant taste and nearly odorless. The pure substances when added to water hisses and froths at the same time evolving heat. It is soluble in water (1 in 20) forming a neutral solution or slightly acid. Aqueous solutions are pale yellow and clear or may be made quite clear by the addition of a little hydrochloric acid. The addition of alcohol precipitates peptone. Aqueous solutions are not coagulated by heat. No precipitate is formed in aqueous solution on the addition of nitric acid or potassium ferrocyanide (difference from albumen) nor is a precipitate formed by solutions of ferric chloride or cupric sulphate nor by saturation with ammonium sulphate or zinc sulphate (distinction from albumoses). The aqueous solutions are laevorotatory. Neutral solutions are precipitated by tannin and by various salts of mercury. Acid solutions give precipitates with bismuth potassium iodide, potassium mercuric iodide, bromine water and other precipitants of alkaloids. Peptone is colored yellow with Millon's reagent on warming a red color and precipitate; with cupric sulphate and caustic alkali a violet red color (biuret reaction). Picric acid gives yellow flakes. Peptone should not be precipitated by lead acetate, alum or hydrogen sulphide. On ignition it should not yield more than 2 per cent. ash.

Action and Uses.—Peptone is given as a nutrient in malnutrition and certain forms of dyspepsia. Its value is limited because larger amounts, often even small quantities, cause irritation.

Dosage.—Peptone is given in the form of pastilles, 5 Gm. in each prepared with gelatine. It is administered in rectal alimentation in the form of suppositories or it may be added to rectal enemata.

(To be continued)

Therapeutics

ECZEMA

This troublesome condition is often so difficult to cure that the thoughtful consideration of its treatment by Dr. E. G. Little (*British Medical Journal*, June 5, 1909) is well worth describing.

He makes the very pertinent dictum that it is the patient who has the eczema who is being treated, and not merely the eruption on the skin, and therefore believes it necessary that the patient should be subjected to a very careful physical examination. Also, the urine should be carefully analyzed, the diet should be investigated, and, in fact, no examination is too rigid to thoroughly understand the physiologic (or pathologic) condition of a patient who is suffering from eczema.

Little adopts Tilbury Fox's long descriptive definition of the disease, which it is well to bear in mind, viz.: "Eczema is a catarrhal inflammation of the skin which is mainly characterized by a peculiar discharge, stiffening linen and drying in thin yellow crusts, and having its stages of erythema, papulation, vesiculation, discharge, pus formation, and squamation more or less marked under different circumstances and followed in some cases by the secondary results of inflammation such as hypertrophy, edema and the like."

ACUTE ECZEMA

This is an erythematous eruption, occurring mostly on exposed surfaces of the body and due to cold or irritants. This eruption may abort at this stage, or it may go on to vesication, exudates, and even pus infection. The disease is not contagious.

The best treatment of this condition is rest in bed, with a low diet and the use of sedative lotions. Little believes that a pure milk diet is the best. The bowels should be kept loose, best with saline laxatives; it is unimportant which one is selected—Rochelle salt, effervescing phosphate of soda, or artificial Carlsbad salts, a teaspoonful or more (enough for one or two movements of the bowels), taken in a glass of hot water before breakfast.

Little finds the best lotion for the skin to be similar to the following:

R.	gm. or c.c.		
Acidi salicyli	10	or	3iiss
Liquoris plumbi subacetatis	150		fl. 3v

M. et Sig.: Add one tablespoonful to half a pint of milk, and apply to the inflamed skin every four hours.

[Prepare fresh daily, and shake before using.]

CHRONIC ECZEMA

Little urges the necessity for very carefully investigating the patient's work and the possible use of irritants on the parts affected with the chronic eczema, before attempting to treat the disease. In many patients an irritant cause will be found, which if removed, or corrected, will allow the skin to become rapidly healed. If, in the work of the individual, there is a necessity for coming in constant contact with the irritant that has caused the trouble, the cure will be retarded and perhaps prevented. Whether the cause of the eczema be found or not, strong antiseptics or irritants should never be used in the treatment of the condition. If the skin is moist or weeping or red and itching, Little finds that lotions are more sedative than ointments. He suggests the following:

R.	gm. or c.c.		
Calaminæ præparatæ	2		gr. xl
Zinci oxidi	1	or	gr. xx
Aquæ calcis	10		fl. 3iii
Olei olivæ	25		fl. 3i

M. et Sig.: Apply with a brush or cotton swab.

This lotion may also be well applied by moistening gauze in the solution, placing it over the diseased skin, and holding it in place with thin bandages. The skin should never be heated with over-bandaging or thick coverings.

If the eczema has become purulent, the part affected should be subjected for twenty minutes to the action of a mild antiseptic solution, and perhaps the official Liquor Antisepticus will be of sufficient strength. It may, however, be necessary to use a bichlorid of mercury solution (1 to 3,000), or perhaps for a shorter period (ten minutes) one-half of a 1 per cent. solution of the official Liquor Formaldehydi, in water. The infected areas having been thus sterilized, the above soothing lotions may be applied.

When the oozing from the surface has about ceased and the skin shows a tendency to become dry, Little applies a paste in place of the lotion, and he believes Lassar's paste, or something similar, to be the best. The ingredients of this paste or ointment vary, but Little particularizes the composition as follows:

R.	gm. or c.c.		
Acidi salicyli	2		gr. xxv
Zinci oxidi	25	or	
Amyli	25		āā, 3i
Paraffin mollis	50		3ii

M. et Sig.: Use externally.

If the skin shows considerable redness and irritation, the salicylic acid may be omitted, or the following ointment may be used:

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B.	gm. or c.c.	
Zinci oxidi	25	ʒi
Aquæ calcis	25	or
Olei olivæ	25	ää, fl.ʒi
Adipis lanæ hydrosi	10	ʒiii

M. et Sig.: Use externally.

This ointment having been spread thickly over the affected areas, a fine powder, as starch, may be dusted over the ointment so that it almost makes a dry dressing; no bandages are needed.

When the patient is first seen during the stage when dry crusts have formed and scabs from epithelial débris are present, local applications are useless until these are removed. To remove these scabs, wet dressings may be used, well applied by soaking clean, sterile gauze in warm boric acid solutions and applying it to the region of the crusts and scabs. These moist applications are then covered with an oil silk or rubber tissue and kept in place with a bandage. These dressings should be changed as often as they become dry. If pus organisms are present, the skin must be made sterile with one of the antiseptics, and when clean of crusts the above lotion or paste may be applied.

If chronic pus infection is present and the disease is not readily controlled by this treatment, vaccine therapy should be used.

If patches of inveterate eczema have persisted months or even years, associated disease or persistent causes should be suspected. These may be "ichthyosis, varicose veins, gout, diabetes, or tuberculosis." If any of these conditions are found, they should be properly treated, and with their improvement the skin condition will generally improve. A healthy exfoliation of the thickened epidermis may be aided by applying every four or five days the following lotion:

B.	gm. or c.c.	
Phenolis liquefacti	15	or
Liquoris picis alkalini (N. F.)	15	
Glycerini	15	
Alcoholis	15	ää, fl.ʒss

M. et Sig.: Paint on the part with a brush, or swab, once in four or five days.

Each day during the interval the diseased surface should be dressed with some soothing lotion or ointment.

If the above phenol solution is too painful, the sensation of the parts may be first dulled with a cocain application.

In chronic eczematous patches occurring about the junction of the skin and mucous membranes, as the lips, vulva, anus, and on the nipple, nitrate of silver applications may be substituted for the above phenol combination. The fissure, or irritated, or inflamed part may be touched lightly with a swab wet with a nitrate of silver solution (15 to 25 per cent.). This may be done at intervals of four or five days, for several times, if necessary. However, prolonged nitrate of silver applications are inadvisable, as they may tend to prevent healing, and perhaps even give sufficient irritation, in older people at least, to cause pathologic growths.

Little has found picric acid in from 0.5 to 1 per cent. solution, in water, valuable as an application for itching in pruritus ani with fissures, and for itching of other excoriated surfaces.

Eczematous patches or fissures about the nipple occurring during lactation are often cured by one or two nitrate of silver applications, great care as to cleanliness after nursing, and by the continuous applications of saturated boric acid solutions.

In very chronic dry eczema Little obtains satisfactory results by applying gauze saturated with tarry preparations, and then covering the gauze with oil silk and bandaging for twenty-four hours. This same treatment may be several times repeated, if necessary. The Unguentum Picis Compositum of the National Formulary would be a suitable preparation for such use.

ECZEMA OF CHILDREN

The most frequent cause of infantile eczema seems to be exposure to cold, and such local irritants as hard water, strong soap, dirt and irritation caused by lack of cleanliness and neglect. The treatment is to treat properly any parasitic disease that may be present, to keep the parts that are subject to moisture scrupulously clean, to prevent the use of any irritant on the child's skin that could perpetuate the disease, to keep the part comfortably warm but not overheated, and to prevent scratching by any method that seems best. A simple strawboard splint on the arms, long enough to prevent flexion at the elbows, is generally sufficient to prevent scratching. The above calamine lotion and Lassar's paste will aid in curing the condition, but at times the disease in infants is difficult to cure.

Overfeeding and underfeeding should be prevented. The bowels should be carefully watched, both to prevent constipation and to see that the food is satisfactorily digested, and agrees with the child. It is sometimes advisable to cause the bowels temporarily to be rather loose. While the excessive use of artificial foods is often a cause of eczema in young children, still it occurs when the child is breast fed. Certainly, it is inadvisable to allow a restricted diet of artificial food that contains large amounts of salts. Large amounts of alkalies are certainly contraindicated, and the same is true of much acids. Water should be freely given. Change of air to the country or the seashore seems often advisable. This is especially true during the heated term, and overheating houses in winter, causing the child to become very warm, will prolong the disease.

Little does not believe that warm bathing of the eczematous child is inadvisable, and believes that the part may be bathed at any stage, with the precaution to use no strong alkaline or irritating soap, and to use either soft water or water that has been made soft by the addition of soothing powders. The inflamed area should never be rubbed, but should be dried by mopping with soft towels or gauze.

If there is much swelling or infiltration of the skin in children, Little administers calcium lactate, doubtless on the presumption that calcium prevents or inhibits exudation. As soon as the edema is less, he stops the administration of the drug. It may be given as follows:

B.	gm. or c.c.	
Calcii lactatis	3	or gr. xl
Aquæ cinnamomi	100	fl.ʒiii

M. et Sig.: Two teaspoonfuls, in water, three times a day, before meals.

Nothing will hasten the improvement of these little patients more than fresh air, quiet, rest, and the prevention of mental as well as physical irritations.

Chinese Surgery.—Medical missionaries in China say that the natives will bear without flinching a degree of pain from which the stoutest of us would shrink in terror. A woman in Shao-wu, afflicted with a ulcer of the leg, was treated by a native "doctor." One day he came to the mission hospital to show the physician in charge a "string" which he calmly announced he had pulled from the wound. It was the sciatic nerve! To people suffering from such barbarous methods, and to whom anesthetics are unknown, the merciful methods of foreign doctors in the mission hospitals seem like miracles.

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[For other information see second page following reading matter]

SATURDAY, AUGUST 21, 1909

THE BACTERIOLYTIC ACTION OF BILE ON THE PNEUMOCOCCUS

Jaundice in pneumonia has generally been considered a very unfavorable prognostic sign indicative of an extreme grade of toxemia produced by the pneumococcus. If this explanation is true, the phenomenon first described by Neufeld[1] in 1900 of the lytic action of bile on the pneumococcus stands in almost paradoxical contrast. If one drop of fresh rabbit's bile is added to 20 drops of a broth culture of pneumococci in a test tube, there is almost immediate clearing up of the cloudy fluid, due, as is observed in a hanging drop under the microscope, to complete lysis of the bacteria. Bile salts were later found to act in the same way. The reaction is specific, as no other organism is dissolved by bile, and it has been of considerable importance in differentiating streptococci from pneumococci. The so-called *Streptococcus mucosus capsulatus*, which in most respects behaves like a variety of pneumococcus, is dissolved by even less bile than is required for the pneumococcus.

Recently Grixoni[2] has reported from Grocco's clinic a series of most interesting experiments conducted both *in vitro* and *in vivo*. All strains of streptococci tested gave negative results. Using six different strains of pneumococci he showed that the reaction depends largely on the bile used, as is to be expected from the varying chemical composition of "normal" bile at different times. Rabbit bile is more active than ox bile, and fresh sterile bile acts more rapidly than contaminated bile. The lytic power is lost at room temperature or at 37° C., and is damaged by heat of sterilization, but is retained if the bile is kept on ice. Both sodium glycocholate and taurocholate have lytic power, the latter acting more powerfully; but the dissolving power of the combined salts, each in 2 per cent. solution, is less than that of fresh bile, although greater than that of bile heated to 120° C. for an hour.

Neufeld[3] a short time before the publication of Grixoni's results confirmed his original observations, and showed that a direct relation exists between virulence and rapidity of lysis by bile. Grixoni independently reached the same conclusion, and found that a culture freshly isolated from the blood of an infected animal is dissolved in about one-fourth the time necessary for the same organism after it has grown on artificial culture media. Grixoni's animal experiments almost shatter any dreams of a practical therapeutic application of this reaction, at least in systemic pneumococcus infections like pneumonia. Subcutaneous, intraperitoneal and intrapleural injections of bile, or bile salts, protect only when given at the same place and time as the bacterial injection, so that what practically occurs in the experiments is an injection of organisms already dissolved. Given in any way, bile has no prophylactic power, while intravenous doses hasten the death of the animal, probably on account of the toxic action of the bile itself.

Remarkable as is the phenomenon of lysis by bile, no explanation of its cause has yet been offered. Neufeld suggests the possibility of its being related in some way to the capsules of the pneumococcus, but as no other encapsulated organisms yield the reaction no definite conclusions are to be drawn. At present it is a phenomenon *sui generis*, of importance in the differential diagnosis between pneumococci and streptococci and in testing the virulence of pneumococci.

1. Ztschr. f. Hyg., xxxiv, 1900, 454.
2. Riv. critica di clin. med., x, 1909, 17-33.
3. Arb. a. d. kaiserlich. Gesdhtsamte., xxviii, 1908, 572

THE PURIFICATION OF WATER BY OZONE

Ozone has been called the ideal agent of purification since it is only a more active form of ordinary oxygen, already existing normally in the atmosphere in small quantities, and since its application to water leaves behind no foreign chemical residue. The first attempt (1889) to sterilize water with ozone was reported by Fröhlich,[1] and was carried out with an apparatus manufactured by Siemens and Halske of Berlin. The Siemens and Halske method was installed later on a larger scale at Wiesbaden and Paderborn in Germany, and is said by Erlwein[2] to have given highly satisfactory results at those places. Other forms of ozonizing apparatus have been devised by Tindal (since improved by De Frise), Marmier and Abraham, Vosmaer and Otto, and are in use in several installations in Holland, France and Germany. The process has been investigated by a number of competent bacteriologists, including van Ermengem, Roux and others, and has shown in practically all cases excellent results. Bacteria in the water, including *B. coli*, are destroyed to such an extent that an initial content of 2,000-4,000 per c.c. is reduced to 1 or 2 per c.c. or even less. There is consequently no doubt as to the bacterial efficiency of the process.

The nature of a water treated by an ozonizing system is of some importance since it is plainly extravagant to employ ozone for the oxidation of any large quantity of chemical impurity. The method, for example, is hardly applicable to the direct treatment of a turbid river water containing a considerable quantity of or-

1. Electrotechn. Ztschr., 1891, p. 344.
2. Ber. über d. XIV Internat. Kong. f. Hyg. u. Demog., 1908, 3, p. 195.

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ganic matter in solution or suspension. At the St. Maur municipal waterworks of the city of Paris, where the DeFrise ozonization method is employed with considerable success for furnishing a portion of the Paris drinking water supply, the water of the river Marne is subjected to a preliminary clarification before it is ozonized. The river Marne is highly polluted with sewage, but after the water is passed through beds of sand and gravel and then treated with ozone it possesses a degree of bacterial purity indicated by the fact that *B. coli* is not found when quantities as large as 200 c.c. are tested.[3]

The question of the relative expense of ozonization of large public water supplies as compared with that of sand filtration or of certain forms of mechanical filtration is a point on which it is not easy to secure definite information based on data covering a considerable period. Erlwein estimates that with a large plant the cost might be as low as about one-half cent per 1,000 gallons, and Rideal gives about two-thirds of a cent per 1,000 gallons as the actual cost of ozonization at St. Maur. Neither of these estimates includes the cost of preliminary treatment of a polluted water. In the absence of any uniform system of waterworks accounting, it is very difficult to obtain trustworthy information concerning cost of installation and operation of purification systems, though this is a vital point.

To justify the introduction of any new system of water purification, even though it be one of recognized efficiency, the question of comparative cost should be presented in such a way as to convince reasonable inquirers. This has not yet been done with the ozonization process.

3. Rideal: Jour. Roy. San. Inst., 1909, xxx. 32.

THE FIRST PHYSICIAN

The first physician of whom we have any definite record is evidently I-em-Hetep, who lived in the reign of King Tchser, a monarch of the Third Dynasty of Egypt, the date of whose reign is somewhat uncertain, but is probably not later than 4500 B. C. In the light of recently awakened interest in psychotherapeutics and the use of the mind to influence the body, it is extremely interesting to note that his name, I-em-Hetep, means "the bringer of peace." According to tradition, he had two other titles, one of which was "The Master of Secrets" and the other "The Scribe of Numbers." The reference embodied in the first of these titles is easy to understand. The second is less easy of comprehension. Perhaps the writing of his prescriptions required an unusual knowledge of numbers in those days, for even at that time the Egyptians had a great many remedies that they employed for diseases of various kinds and many methods of administering them. He seems to have been held in high honor by his generation and to have received ample rewards for his professional work, for the well-known "step pyramid" at Sakkara, the old cemetery near Memphis, is attributed to him, showing that he was only next to the king in honor and also very probably in revenue.

Even more interesting than this, however, is the honor that was paid to him after death. Men had learned to trust him so much, they had come to realize how thoroughly he fulfilled his name, the "bringer of peace," and how often he had helped them in suffering, that after his death they concluded that he must have had more than human knowledge and so they made a deity of him and worshipped him. While doing this they were careful, however, to maintain his humanity as the principal element for their reverence. While they made statues of him these never have a beard, which was the distinct mark of divinity at that time. He is represented as a placid-looking man seated with a scroll on his knees and a look of very sympathetic humanity on his face. For over four millenniums he continued to be held in high honor among the Egyptians, and the hospitals erected in various places were always placed under his protection. When after Alexander's time the Ptolemies, who were originally Greek, came to rule in Egypt, I-em-Hetep came to be identified with Æsculapius, the Greek physician of about 1200 B. C., whose wonderful success in relieving men's ills, bodily and mental, had caused the Greeks after his time, in similar fashion, to make a deity of him.

While I-em-Hetep is the first physician among the Egyptians, he must not be considered an isolated figure in Egyptian history, for every few centuries since we have the story of some distinguished man in medicine whose merits have given him a place in the memory of men ever after. About three centuries after I-em-Hetep came King Athothis, who is said to have written the first text-book of anatomy. A few centuries later came the distinguished surgeon on whose tomb, in the same cemetery of Sakkara or Saqqârah near Memphis, the old capital of Egypt, not far from the present city of Cairo, is to be found the series of pictures of surgical operations which are the earliest extant and which were described in THE JOURNAL, Nov. 9, 1907. The Ebers papyrus gives us a still more detailed picture of Egyptian medical life and education, so that it is evident that for about 3,000 years before the writing of this papyrus there was great devotion to medicine and surgery on the part of the men who reached high distinction among their fellows in Egypt. In a word, it is possible, as a consequence of recent discoveries in Egyptian history, to trace the medical profession with its members occupying places of honor and confidence among men for more than 6,000 years.

INDUSTRIAL OVERSTRAIN

While more attention is being continually given to industrial diseases, it is likely to be the feeling of the physician that this is a special field which concerns mostly the practitioner in the industrial centers. Those who have to do with painters or other lead workers are nat-

urally interested in plumbism; other groups will find it to their advantage to study grinder's phthisis, etc. But there is a more general relation of labor that demands the attention of the medical profession and must interest every physician who has patients of the laboring class. While a trade may be free from poisons or other special tendencies to disease, it may contribute to the production of disease by the severe and exhausting character of the labor itself. Josephine Goldmark[1] calls attention to the influence of fatigue and the need of a thorough investigation of its effects in predisposing the system for other diseases, such as the infections. The prevalence of neurasthenia among the working population and the increase of other nervous diseases among tradesmen and laborers are phenomena whose relation to fatigue and long working hours it would be well to investigate. This author calls attention to the lack of study of this subject on the part of American hygienists, although foreign investigators have taken it up and it is receiving emphatic attention from the Permanent International Commission for the Study of Professional Maladies, a French organization on which American medicine has no representative. Attention is called to the fact that the 1910 meeting of the International Congress of Hygiene and Demography, to be held in the United States for the first time, will give an opportunity for the presentation of the results of studies of the effects of fatigue and long hours under American industrial conditions. Such a study would be exceedingly beneficial as a basis for framing suitable laws to regulate such conditions and would also give the medical profession a new insight into the pathogenesis of many common ailments.

Medical News

ILLINOIS

Chicago

Infantile Mortality.—The total deaths of infants under 1 year of age during the past week jumped from 142 to 194, an increase of 52 over the preceding week, and an excess of 13 over the corresponding week of last year. Gastrointestinal disorders are accountable for 185 deaths, or more than 31 per cent. of the total for the week from all causes; 167 of these 185 deaths were among children under 2 years of age. This record exceeds the preceding week by 39, and is 23 higher than the corresponding week of last year. Notwithstanding these increases, the general death rate was more than 4 per cent. lower than the August average and 6.5 per cent. below the rate of the corresponding week of 1908.

MARYLAND

Baltimore

Smallpox on Steamship.—The North German Lloyd steamship *Main* was delayed at quarantine August 10 by the discovery of a case of smallpox among its steerage passengers. After a thorough fumigation, she was allowed to go to her pier. There were 450 passengers aboard the vessel.

Typhoid Decreasing.—The health report for week ending August 14, shows a large falling off in typhoid fever cases. There were 86 cases for the same period in 1908 and 46 in 1909. This result is attributed by the health commissioner to the unusually dry season and the care taken of the city's milk supply.

NEW YORK

Home for Destitute and Sick Children.—The Holiday Farm, organized to maintain a home for the reception and temporary treatment of indigent or destitute sick and convalescent children, was incorporated August 5, with its principal office at Rhinecliff.

1. The Survey, July 10, 1909.

No Insurance Company Hospital.—The application of a life insurance company for permission to acquire real estate for the purpose of erecting thereon a tuberculosis hospital has been denied by Superintendent Hotchkiss. The denial rests on the insurance law which does not permit insurance companies to acquire real estate excepting such as is required in the transaction of their ordinary business, i. e., making and selling insurance.

National Tuberculosis Hospital.—It is reported that 27,000 persons in 28 states will contribute a little over 9 cents a month each to build and maintain a tuberculosis sanitarium at Liberty, which is to be established by the Workmen's Circle, a fraternal insurance organization. Immediate steps will be taken toward the erection of the hospital as soon as the application is granted by Health Commissioner Porter. The institution will accommodate 40 patients.

New York City

Gone Abroad.—Dr. and Mrs. W. P. Cunningham, Dr. and Mrs. Samuel G. Gant, Dr. and Mrs. Henry D. Chapin, Dr. and Mrs. Henry B. Delatour, Drs. William E. West and Michele Accetta and Dr. and Mrs. William V. Hayes have sailed for Europe.

Milk Famine Threatens.—The persistent drought throughout New York and the eastern states is responsible for a milk famine, which has already raised the price of milk. Dealers are curtailing their output in every possible way, and a meeting has been called to consider the problem in New York.

Gas Checks for Charity.—From the gas rebate fund, which amounts to about $11,000,000, the committee on the prevention of tuberculosis of the Charity Organization Society has received as a voluntary contribution $14,244. This money will be used by the committee in its crusade against tuberculosis, and will enable the committee to pay for an exhibit to be made in all the schools, preparations for which are now under way.

Work of the Junior Sea Breeze Hospital.—The report of Junior Sea Breeze, a hospital maintained by John D. Rockefeller through the Association for Improving the Condition of the Poor, shows that there have been about twice as many dispensary cases as during the same time last year, while, although the hospital is filled to the extent of its capacity, the total number of admissions has been only about one-half what it was during the same time last summer. While it is admitted that the cool summer may have something to do with the falling off, the real explanation is attributed to the work of the visiting nurses who send the babies to the dispensary before they become dangerously ill. The number of deaths at the hospital has been very small.

Hospital Notes.—Plans have been filed for remodeling the bacteriologic laboratory, improving the lighting and adding accommodations on the first floor of St. Luke's Hospital for animals to be used in experiments. The improvements will cost $25,000.——Plans have been filed for remodeling the upper floor of the City Hospital, Blackwell's Island, and erecting an operating theater. There will be a surgeon's room, a workroom for nurses and an *x*-ray room, together with several recovery rooms. These and several minor improvements will cost $30,000.——Elaborate plans have been approved and a liberal appropriation has been made for the establishment of rest stations, comfort stations and medical stations in all parts of the city during the Hudson-Fulton celebration. One-third of the churches have planned to keep their doors open and to provide nurses from 9 a. m. to 9 p. m. Tents will be put up as emergency hospitals, each containing twelve cots, and nurses, orderlies and physicians will be on duty at all hours. Ambulance launches will be in service during the water celebration.

Buffalo

Personal.—Drs. John Hudson Grant, George A. Himmelsbach and James W. Putnam have gone abroad.

Isolation Hospital Condemned.—Dr. Walter Goodale, superintendent of the temporary Municipal Isolation Hospital, condemns the building, which, originally a public school building, was condemned and abandoned. A site should be provided by the city for a modern hospital for communicable diseases.

Esculapian Club Election.—The Esculapian Club has elected the following officers: President, Dr. Cornelius J. Carr; vice-president, Dr. Irving W. Potter; secretary, Dr. Julius Ullman; treasurer, Dr. Albert J. Colton; and advisory council, the president, and Drs. Francis M. O'Gorman and Frderick S. Hoffman.

Hospital Notes.—Plans have been drawn for an addition to the German Deaconess' Hospital, to cost about $80,000. The addition will be four stories in height, fireproof and will pro-

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vide 75 new rooms and a well-equipped and complete operating room.——Riverside Hospital, Lafayette avenue, has been enlarged, taking in the Riverside Accident Hospital and the Marine Hospital. The institution is under the charge of Dr. Lillian Craig Randall.

Academy Elects Officers.—The following officers have been elected for the Buffalo Academy of Medicine: President, Dr. Earl P. Lothrop; secretary, Dr. Harry R. Trick; treasurer, Dr. Lawrence Hendee; trustee, Dr. Grover W. Wende; chairman section on medicine, Dr. Thomas J. Walsh, and secretary, Dr. Henry P. Frost; chairman section on surgery, Dr. Thew Wright, and secretary, Dr. James A. McLeod; chairman section on obstetrics and gynecology, Dr. Burt C. Johnson, and secretary, Dr. James F. Whitwell; chairman section on pathology, Dr. Frederick J. Parmenter, and secretary, Dr. Norman K. McLeod.

NORTH CAROLINA

Personal.—Dr. J. Edward Smoot, Concord, who was operated on for appendicitis at the Salisbury Sanitarium recently, is improving.——Dr. William J. McAnnally, High Point, is seriously ill with septicemia, due to the bite of a spider.——Dr. William Allen, Charlotte, has been elected secretary-treasurer of the Associated Charities of the City of Charlotte.

Impure Mineral Waters.—Under a recently enacted law authorizing the State Board of Health to make examinations from time to time, as it may see fit, of the various mineral waters offered for sale throughout the state, examination of a number of specimens of bottled waters has been made, showing the presence of colon bacilli in a lithia water bottled in Virginia and sold widely throughout the United States.

State Health Officer Commended.—The Medical Society of the State of North Carolina, on the retirement of Dr. Richard H. Lewis as secretary of the Board of Health, adopted resolutions expressing the regret with which they accept his resignation, and its conviction that he has done more, both in his official and individual capacity, than would have been possible for any other one to have done, and commending his work in saving them from impending adverse legislation, and having secured such salutary measures as are responsible for their present advanced position in sanitary work.

State Hospital for Tuberculosis.—The State Hospital for Tuberculosis in Moore county has been visited by the assistant secretary of the State Board of Health, and has been closed pending needed sanitary improvements. The institution is expected to be opened next month with accommodation for 50 patients, and after January 1 next accommodation for 50 additional patients will be provided. A strong sentiment exists among leading phthisiologists of the state that the present site for the institution should be abandoned, and a new location secured in the mountain section of the state.

NORTH DAKOTA

New Hospital Opens.—Dedicatory exercises of the Bismarck Hospital and Deaconess Home were held July 4. The hospital is a three-story structure, 40 x 120, and is well built and thoroughly equipped.

Physician Wins Suit.—In the suit against Dr. Edward J. Hagen, Williston, in which damages were claimed on account of alleged malpractice, the jury, after five hours' deliberation, brought in a verdict in favor of the defendant.

Sanitarium News.—Bottineau, Dunseith, Cando and Walhalla are working to secure the State Sanitarium for Tuberculosis, recently authorized by the legislature.——Bids were opened and the contract let on July 24 for the new $10,000 addition to the Fargo Sanitarium.

OHIO

Personal.—Dr. Paul W. Tappan, Dayton, has been elected first lieutenant O. N. G.——Drs. W. Watson Conger, Toledo, William P. Love, Youngstown, and Adolph J. Girardot, Toledo, have been taking the course of instruction at the Government School, Sparta, Wis.——Dr. R. H. Bishop, Jr., has succeeded Dr. Frank Vincent as a member of the staff of the Tuberculosis Dispensary, connected with the Western Reserve University Medical School, Cleveland.——Dr. William J. Means, Columbus, was seriously injured in an automobile accident, July 16.——Dr. and Mrs. George F. Brubaker, Springfield, have sailed for Europe.——Dr. Louis M. Early, physician of the State School for the Blind, Columbus, has retired and has been succeeded by Dr. Isaac B. Harris.

Cincinnati

Roentgenologists Meet.—Medical men, interested in *x*-ray work, met August 7, at the office of Dr. Henry Kennon Dunham and organized the Cincinnati Roentgen Ray Society, with seven charter members. Dr. Dudley Webb was elected secretary.

PENNSYLVANIA

State Medical Society Meeting.—The annual meeting of the Medical Society of the State of Pennsylvania will be held in Philadelphia, September 27 to October 1.

Tablet Presented to Hospital.—A bronze tablet of the late Dr. John Fay is to be presented to the Altoona Hospital to be placed in the reception room early next week. Addresses will be made on behalf of the staff by Drs. William S. Ross and Frederick H. Bloomhardt, Altoona, Dr. Henry H. Brotherlin, Hollidaysburg,and others.

Hospital Notes.—St. Margaret's Memorial Hospital, which was equipped for service ten years ago, but has been unused since that time because of the lack of a maintenance fund, is soon to be opened. The hospital has a capacity of 100 patients.——The president of the Bethlehem Steel Works has ordered the closing of the Bethlehem Steel Works Hospital.

State Board of Examiners for Nurses.—The examining board for nurses, appointed under the act passed in the last legislature, consists of Miss Ida F. Giles, Pittsburg, Miss Roberta M. West, Erie, and Drs. Alice M. Seabrook, William S. Higbee and Albert E. Blackburn, all of Philadelphia. The board met for organization at Harrisburg, July 27, and elected Dr. Higbee, president; Miss West, vice-president, and Dr. Blackburn, secretary-treasurer. The board is now ready to receive applications for registration in compliance with the act, through its secretary.

Personal.—Dr. Samuel H. Gilliland, Marietta, has sailed for Europe.——Dr. Percival A. Herman, Middleburg, has been appointed a medical inspector in the department of tuberculosis of the State Health Bureau.——Dr. Hamilton K. Beatty, Pittsburg, superintendent of the sanitation bureau of the City Health Department, was presented, July 7, by the chief inspectors of the stations over which he presided, with a gold shield.——Dr. J. William Schultz, Tremont, has been elected president and Dr. Theo. C. Fegley, Tremont, secretary of an organization composed of the physicians in the territory extending from Pine Grove to Hegins.——Dr. Mary M. Wolfe, resident physician to the State Hospital for the Insane, Norristown, has resigned, to take effect October 1.——Dr. Wilmer R. Batt, Harrisburg, one of the three representatives of the United States at the meeting of the International Commiission for the Revision of the Classification of Causes of Death and Illness, has sailed for Europe.

Philadelphia

Clinic Opens in New Location.—The Philadelphia Clinic for the Free Treatment of Throat and Chest Diseases has removed to its new quarters at 2114 Lombard street. Free clinics are held at the institution on Mondays, Wednesdays and Fridays at 3 p. m.

Personal.—Drs. Henry R. M. Landis, Charles K. Mills, Eugene L. Van Sant and John McLernon have sailed for Europe.——Dr. Sheridan P. Manship has been appointed a police surgeon.——Dr. Walter W. Roach has succeeded Dr. William Graton, resigned, as medical inspector.

Bequests to Tuberculosis Sanitaria.—Payment of the $5,000 bequest of John G. Brill to the Free Hospital for Poor Consumptives, White Haven, have been made by representatives of the estate.——Dr. Lawrence F. Flick, director of the Phipps Institute, has received an offer from one of the Philadelphia hospitals of six beds, the expense of which will be paid by Henry Phipps.

Christmas Stamp Money Apportioned.—The funds received from the sale of Christmas stamps for the tuberculosis cause have at last been apportioned as follows: Free Hospital for Poor Consumptives, White Haven, $2,500; Pennsylvania Society for the Prevention of Tuberculosis, $1,000; Germantown Hospital, $1,500; Grandview Institution for the Cure and Treatment of Tuberculosis, $1,000, and Philadelphia Protestant Episcopalian City Mission Home for Consumptives, Chestnut Hill, $2,000. The committee recommended that the balance of more than $3,000 be retained for distribution to tuberculosis institutes which have not yet applied for relief.

TEXAS

New Sanitarium.—Dr. Andrew J. Bell and associates are to erect a twenty-room sanitarium at Quanah, to cost $10,000.

Building for Doctors.—The Dallas Medical and Surgical Building Association has been organized to erect an office building to be devoted to professional men entirely and to cost $500,000.

Acquitted.—In the district court at Rusk, July 3, a jury returned a verdict of not guilty in the case of the State vs. Dr. J. J. Lockhart Forest, charged with the murder of Ollie Branch, about two years ago.

Personal.—Dr. William M. Brumby, Austin, president of the State Board of Health, has returned from a trip of inspection to Cuban, Central American and Mexican ports, and reports great progress in sanitation.——Dr. John W. Tottenham has been appointed health officer of Brownwood.——Dr. John H. Florence, Galveston, has been acting as state health officer during the absence of Dr. Brumby.——Dr. G. W. Basket, Van Alstyne, has been elected medical director of the Texas Homeo. Sanitarium, Llano.

UTAH

Faculty Changes.—Leon W. Hartman, associate professor of physics, and William Blum, assistant professor of chemistry, have severed their connection with the University of Utah.

Sanitary Bulletin.—Dr. Theodore B. Beatty, Salt Lake, secretary of the State Board of Health, has issued an imperative bulletin to all health officers of the state, in which he urges them to use the utmost vigilance in the enforcement of the law requiring the disinfection of all discharges from typhoid fever patients.

New Hospital.—The contract for the construction of the Dee Memorial Hospital, Ogden, has been awarded for $75,000. The building, when completed and equipped, will have cost more than $100,000. It will be five stories in height, 149x60 feet, will contain accommodation for eighty patients, and is to be completed by February 1, 1910.

Care for Veterans.—Dr. William F. Beer, in charge of the forty-third annual encampment, G. A. R., Salt Lake City, has arranged for a thoroughly-organized medical and nursing corps to furnish first aid and provide medical attention for all cases of illness and accidents during the encampment. An emergency hospital has been secured in the Boston Building and a special retention hospital has been arranged on the grounds of the Latter Day Saints Hospital. Automobile ambulances are to be placed at various stations along the line of march.

VERMONT

Alumni Election.—The annual meeting of the Alumni Association of the medical department of the University of Vermont, Burlington, was held June 29, and the following officers were elected: President, Dr. U. A. Woodbury, Burlington; vice-presidents, Drs. William N. Bryant, Ludlow; Patrick E. McSweeney, Burlington; Michael F. McGuire, Montpelier; Charles L. Fletcher, Dover, N. Y.; and Don D. Grout, Waterbury; and, secretary-treasurer, Dr. Lyman Allen, Burlington.

Society Meetings.—At the annual meeting of the Lamoille County Medical Association, held in Burlington, July 28, the following officers were elected: President, Dr. George L. Bates, Morrisville; vice-president, Dr. Harry W. Barrows, Stowe; secretary-treasurer, Dr. William M. Johnstone, Morrisville; censors, Dr. W. M. Johnstone, Morrisville, John C. Morgan, Stowe, George H. Newton, Cambridge; auditor, Dr. George L. Bates, Morrisville; and delegate to the state society, Dr. Archibald J. Valleau, Morrisville.——At the annual meeting of the Addison County Association, held in Middlebury, July 22, the following officers were elected: President, George F. B. Willard, Vergennes; vice-president, Dr. Robert W. Prentiss, East Middlebury; secretary, Dr. Frank C. Phelps, Vergennes; treasurer, Dr. Frank T. Briggs, Bristol; and librarian, Dr. Merritt H. Eddy, Middlebury.

VIRGINIA

Sanatorium Opens.—The new State Sanatorium for Tuberculosis at Roanoke Red Sulphur Springs, was opened to receive patients July 16.

Medical Society Organized.—Ocean View Medical Society has been organized at Norfolk, with the following officers: Dr. Southgate Leigh, Norfolk, president, and Dr. Wiilliam D. Turner, Shoal Bay, secretary.

Medical Society Meets.—The Fairfax Medical Society held its annual meeting in Alexandria August 5, and elected the following officers: President, Dr. Frederick M. Brooks, Swetnam; vice-presidents, Drs. C. R. DuFour and Carlton L. Starkweather, Occoquan; secretary, Dr. Llewellyn Powell, Alexandria; corresponding secretary, Dr. Arthur G. Coumbe, Vienna, and treasurer, Dr. Edwin L. Detwiler, Herndon.

Personal.—Dr. Kenneth Bradford has been elected health officer of Staunton.——Dr. Truman A. Parker, Richmond, has been placed in charge of the new Catawba Sanatorium for Tuberculosis, in Roanoke County.——Drs. George J. Williams, Newport, Will R. Williams, Richlands, Lomax Gwathmey and Herbert N. Old, Norfolk, have sailed for Europe.——Dr. Henry Stuart MacLean has been appointed chief surgeon for the Virginia Railway and Power Co., and Dr. Francis W. Upshur, assistant, for Richmond and Manchester, and Dr. John G. Rennie has been appointed local surgeon at Petersburg.

WEST VIRGINIA

Antituberculosis Society Organized.—The Antituberculosis League of Parkersburg was organized August 2 with nonprofessional officers, but with Drs. Alfred N. Frame, Walter S. Link and O. Dustin Barker on the board of directors.

Personal.—Dr. W. Dewitt Stewart, city health officer of Moundsville and Dr. Charles W. Hudson, health officer of Parkersburg, have resigned.——The diploma of Dr. James F. York, Huntington, issued by the Eclectic Medical Institute, Cincinnati, June 4, 1895, has been stolen from his office.

Smallpox Prevented.—Dr. J. F. Scott, president of the board of health of Henry, reports a case of smallpox imported by an Italian immigrant, which by reason of prompt diagnosis and quarantine by Dr. R. M. Riley, was followed by no spread of the disease.

WISCONSIN

District Society Meeting.—At the sixth annual meeting of the Second Councilor District Medical Society, held in Kenosha, August 3, the following officers were elected: President, Dr. Samuel C. Bochan, Racine; secretary-treasurer, Dr. George W. Nott, Racine, and vice-presidents, the presidents of the affiliated county societies. The next meeting will be held in Racine.

Faculty Announced.—The Wisconsin College of Physicians and Surgeons, Milwaukee, announces that its first semester will open October 5, and the following faculty list is given: Dr. Wilbur O. Carrier, president; Dr. Thomas C. Phillips, dean; Dr. Solon Marks, emeritus professor of military surgery and of fractures and dislocations; Dr. A. Hamilton Levings, professor of surgery; Dr. Uranus O. B. Wingate, professor of nervous and mental diseases; Dr. William H. Washburn, professor of medicine; Dr. James A. Bach, professor of ophthalmology; Dr. Harry A. Sifton, professor of clinical surgery; Dr. Lorenzo Boorse, professor of pediatrics; Dr. Gustav A. Kletesch, professor of gynecology; Dr. Henry Blank, professor of orthopedic surgery; Dr. Thomas C. Phillips, dean of the faculty, professor of ophthalmology and otology; Dr. William Francis Becker, professor of mental and nervous diseases; Dr. Gustav A. Hipke, professor of obstetrics; Dr. Herman Reineking, professor of surgery; Dr. Henry B. Hitz, professor of rhinology and laryngology; Dr. Frank E. Darling, professor of bacteriology; Dr. Louis F. Rauschaupt, professor of chemistry; Dr. James D. Madison, professor of medicine; Dr. Curtis A. Evans, professor of anatomy; Dr. Emerson Armour Fletcher, professor of genitourinary surgery; Dr. George C. Ruhland, professor of pathology; Dr. Milton M. Spitz, professor of therapeutics; Dr. Ottó H. Foerster, professor of dermatology; Dr. Wilmot F. Miller, professor of electrotherapeutics and associate in neurology; and Dr. Henry Hasson, professor of clinical microscopy.

GENERAL NEWS AND COMMENT

Railway Installs Paper Cups.—The Baltimore and Ohio Railway has installed one of the new systems of individual drinking cup machines at both Camden and Mt. Royal stations, Baltimore. The cups are made of white paraffin paper, and arranged in slot machines. By dropping a cent in the slot, a paper cup is dropped into the hand and becomes the property of the user.

Branch Federal Laboratory to be Established.—The Public Health and Marine-Hospital Service has taken steps looking to the establishment of a branch of its Federal Laboratory on the Pacific Coast in the zone of squirrel plague infection. This branch laboratory will have for its special purpose the elucidation of the various problems in connection with plague and rodents, work which can not safely be performed in laboratories in the great centers of population.

FOREIGN

Allegory in Sculptured Memorials to Scientists.—Several statues of prominent members of the profession in Europe have been installed recently as memorials at the scene of their labors, but the designs of the sculptors have all been ornately allegorical, and many criticisms have been made that this conflicts with the simplicity and love of absolute truth which distinguished the scientists thus honored. The Brouardel statue at Paris is a bust of the scientist on a tall pedestal with two graceful female figures below, Forensic Medicine and Hygiene, a little smaller in proportion than the bust, lifting high a garland to wreath it at the base of the bust. It stands in the grounds of the medical school. The Mikulicz memorial at the surgical clinic at Breslau represents in bas relief Mikulicz seated in profile, while two standing female figures, Medicine and Science, of a size rather dwarfing the recipient, are placing the wreath of immortality on his brow. One can not help im-

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agining that Mikuliez feels rather embarrassed at the situation. The Kussmaul memorial is a bust rather larger than life-size hewn out of the stone forming the base of the memorial, with a smaller allegorical bas relief below of Medicine relieving a sick youth. The allegorical design has run riot in the Virchow statue, which is to be merely a statue of Hercules overcoming the Nemean lion, representing Virchow's conquest of disease. There is nothing to suggest Virchow personally except a small bas relief bust below. Something like the simple grandeur and life-like presentation of a St. Gauden's statue of Lincoln is what the friends of the scientists long for as a much more appropriate tribute to the memory of men of science, perpetuating their personality, but the sculptors, as a rule, seem determined to insist on decorative allegorical designs.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 7, 1909.

Premature Burial

As stated in a previous letter the coroner's inquest of Great Britain, like many others of its institutions, is antiquated. A committee of the House of Commons is now considering the subject and the trite but ever-interesting subject of premature burial is one of the topics which came up. Mr. Pepper, of St. Mary's Hospital, the well-known medicolegal expert, gave evidence. He said that under the present condition of death certification there was practically no danger of any one being buried alive. Nearly all the cases of premature burial were myths. He regarded the present scare on the subject as baseless. A muscular movement of a corpse possibly was the basis of some of the reports. But he thought that no person ought to be buried until the corpse had been seen by a physician and no physician ought to give a certificate until he had seen the corpse. According to the present system a medical man may give a death certificate if he has never seen the corpse; all that is necessary is that he should have been in attendance during the last illness and seen the patient within a week of death.

Malaria Without the Anopheles Mosquito?

A despatch received from the governor of the Seychelles Archipelago—which lies about 750 miles northeast of Madagascar—appears to show that an epidemic of malaria is possible without the agency of the anopheles mosquito. In April, 1908, malaria broke out suddenly in Picard Island. The cases were of the benign tertian type mixed with a few isolated quotidian ones and occurred up to the end of August. Almost all the laborers in the settlement were attacked, but none died. The diagnosis was confirmed by microscopic examination of the blood which was performed by Dr. M. S. Power. Under quinin the epidemic soon subsided. It began soon after the arrival of a vessel from Manhigo, a French island off Madagascar, where malaria is prevalent. Some laborers suffering from malaria landed from the vessel and within a month the disease spread to others. Careful search for the anopheles was made but failed to reveal it. At first this was attributed to the season, as mosquitoes are scarce during the southeast monsoon. However, larvæ of the culex and stegomyia were found. Further search for the anopheles during and after the rainy season was made for five months, but it could not be found. The conclusion was drawn that it does not exist in Picard Island. Previous investigators have also recognized the absence of this mosquito from the Seychelles Islands and malaria has been unknown there excepting imported cases, but these were not known previously to have given rise to fresh cases. Two suggestions have been made. Perhaps under certain circumstances malaria may be conveyed by other mosquitoes than the anopheles. Perhaps the vessel in which the malarial laborers arrived may have carried some anopheles which went ashore and bit the inhabitants, but, the local conditions not being favorable to their existence, they disappeared.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 5, 1909.

Prize of the Academy of Sciences

The Academy of Sciences has just awarded three prizes of $500 (2,500 francs) each, one to Dr. Neumann for his researches on the family of the ixodidæ and on various groups of parasites of the superior vertebrates; one to Dr. Charles Nicolle for his works on infantile kala-azar; and one to Prof. J. Bergonié and Dr. L. Tribondeau of Bordeaux for their work on Roentgen rays and fulguration. In the same competition three second prizes of $300 (1,500 francs) each were awarded, one to Prof. H. Truc and Dr. P. Chavernac of Montpellier for their work on ocular hygiene and ophthalmologic inspection of schools; one to MM. C. Porcher and C. Hervieux for their "Investigations on Indol and Some of Its Derivatives;" and one to M. Moussu, professor at the National Veterinary School of Alfort, for his "Investigations on the Tuberculosis of Cattle." The Godard prize ($200) was awarded to Dr. Pousson, professor at the College of Medicine of Bordeaux, for his "Surgery of Nephritis." The Bellion prize ($280) was awarded to Dr. C. Nicolas, resident physician of Lifu, New Caledonia, for his work, "Public and Private Hygiene of the Kanakas of the Loyalty Islands." The Bréant prize ($20,000), offered for a cure for Asiatic cholera, was not awarded; but out of the accumulated interest of this fund the academy awarded a prize of $800 to W. M. Haffkine for his works on vaccination and bubonic plague, and a second prize of $200 to Dr. Louis Rénon, physician of the hospital of Paris, for his work entitled "Practical Treatment of Pulmonary Tuberculosis."

Personal

The chair of therapeutics of Bordeaux has just been replaced by a clinical department of cutaneous and syphilitic diseases, of which Dr. Dubreuilh, adjunct professor, has been appointed head. At the same college the chair of operative medicine has been replaced by a clinical department of diseases of the urinary passages, and Dr. Pousson, an adjunct professor, has been appointed as its head.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 29, 1909.

The First Provincial Institution for Tuberculosis

The first provincial institution for the treatment and prophylaxis of tuberculosis has just been founded in Göttingen, and has already proved to be a necessity, for in several places in the district tuberculosis is very prevalent. The clergy of the district have undertaken the local direction of the institution. Its objects are twofold; first, to eradicate the various foci of tuberculosis; and, second, to discover incipient cases of tuberculosis and to furnish institutional treatment to the patients. Sputum cups may be obtained for distribution. The washing of the patients is to have special treatment in laundry bags, the property of the institution. Strengthening foods (milk and eggs) are to be furnished in special cases. The effort will be made to see that tuberculous patients with sputum capable of conveying infection shall have separate sleeping-rooms or at least separate beds in their homes. The disinfection of the dwelling will also be done by the institution. The funds for the new institution have been raised and placed at the disposal of the local commission by the life insurance organization.

Investigation of the Influence of Roentgen Rays on Physical Growth

It has been established through animal experimentation that exposure to Roentgen rays impairs physical growth. To investigate the question how far these findings apply to human beings, this year's congress of the German Roentgen Society has decided on a collective inquiry. Children who have been treated with Roentgen rays during their first year, especiallly those whose treatment took place some time ago, are to be investigated, for it has been shown by animal experimentation that the disturbance in growth is greater the younger the animal, and also that a slighter degree of disturbance of growth may not manifest itself until after several years.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 30, 1909.

Death of Hofrath von Vogl

A few days ago August von Vogl, emeritus professor of pharmacology in Vienna, died at Bozen in his seventy-sixth year. The remarkable personality of this scientist is well known, as he was the originator and founder of the modern pharmacognosy; he was the first man to apply the researches of histology and the use of the microscope to this branch of medicine; and his pupils are scattered all over the world. Von Vogl obtained the degree of M.D. in 1860, being the first man in Austria to obtain it. (Formerly only surgeons or physicians or "accoucheurs" (masters of obstetrics) were entitled to practice, each one his own specialty.) Von Vogl soon

took up the study of pharmacology and materia medica, became privat docent and a short time afterward professor of this branch, and in 1879 he was appointed ordinary professor of materia medica in Vienna. In 1897 he became president of the *Oberste Sanitätsrat* (chief board of health in this country). He was elected twice as "rector magnificus" of the Vienna University, and was appointed by the emperor as Hofrath (privy councilor), and finally ennobled. When he retired from university life at 70, his duties were divided among his pupil and successor, Prof. Hans Horst-Meyer, and Professors Schattenfroh and Mitlacher; such was the enormous amount of work accomplished by this one man. The chief books of the deceased are a text-book on materia medica (translated into seven languages), an anatomic atlas of pharmacognosy (a commentary on the pharmacopeia of different countries), and a work on the adulteration of food, especially of flour, condiments and fruits. Among other distinctions he possessed the English Hanbury medal. von Vogl sometimes used to say he had examined more than 50,000 specimens under the microscope. He was a severe but kind examiner of the students, and none bore him a grudge.

Correspondence

Dr. Harvey Cushing's Oration on the Hypophysis Cerebri

To the Editor:—Those who expressed surprise when, over six years ago ("Internal Secretions," 1st Ed., 1903), I asserted that the anterior lobe of the pituitary played a leading rôle in the vital process *per se*, must now acknowledge the far-reaching meaning of Dr. Cushing's statement, in the Oration on Surgery, published in THE JOURNAL, July 24, that "more than one hundred total or partial hypophysectomies" had shown that "the anterior lobe of the hypophysis is a structure of such importance that a condition of apituitarism is incompatible with the long maintenance of life." While fully acknowledging the great value of Dr. Cushing's experiments, however, I must take exception to his conclusion that they sustain the theory that it is by means of a secretion capable of influencing the organism at large that the anterior pituitary carries on these all-important functions.

That extracts of the posterior lobe raise the blood pressure, slow the heart and promote diuresis, is certain, but I maintain that these effects are not produced by a true secretion, but by a mere component of the organ similar to that which, in extracts of the kidney, testis, ovary, etc., produces identical effects. As I have shown recently (*Monthly Cyclopedia*, June and July, 1909), these effects are those of adrenal extracts, and have long misled observers into believing that these various organs produced internal secretions (See "True *versus* Pseudo-therapy," in a forthcoming number of the *New York Medical Journal*). Additional, but as yet unpublished, researches have suggested, moreover, that this was due to the presence in the pituitary, as well as in all the above-mentioned organs, of cellular elements, the so-called "adrenal rests" (not aberrant cells from my viewpoint, but activators of local metabolism), which are well known to give rise, especially in the kidney, to hypernephroma. Dr. Cushing, in fact, compares the action of the so-called pituitary secretion to that of adrenalin.

Again, although Herring's view that the colloid fluid (laden with broken-down cells, let me add) passes upward is quite warranted, this does not prove in the least that it is a true secretion. Indeed, Dr. Cushing's own text suggests the contrary. Since the blood pressure raising substance is "confined, as Howell has proved, to the posterior lobe," why is it that, as Dr. Cushing says, "after this portion of the gland has been removed, there is no apparent disturbance with the physiologic balance of the body?" Everyone knows that removal of the adrenals or of the thyroid, which produce true secretions, causes marked and even fatal disturbances. Again, the anterior pituitary is regarded by Dr. Cushing as the original source of this secretion; why is it that its extracts are inert? Can we consistently, with him, ascribe acromegaly, overgrowth, etc., to "hypersecretion," and dystrophia adiposo-genitalis, Dercum's adiposis dolorosa, etc., to "hyposecretion" of this inert substance? These are but few of the many directions in which the secretion theory blocks all progress.

Permit me to state that such is not the case when the functions I have ascribed to the pituitary, after a far more searching study than has ever been given it by physiologists, are taken into account. The anterior lobe (including its nerve cells) from this viewpoint is connected with the floor of the third ventricle (Ramon y Cajal, Genti's) and the pons (Andriezen) by nerves which can be traced, both physiologically and clinically, to the adrenals and thyroid, while the secretions of these organs, as I have shown by many incontrovertible facts, are active factors in oxidation, metabolism and nutrition. Under these conditions it is plain that any morbid activity of the anterior pituitary, whether caused by hyperemia, hypertrophy, tumor, etc., must, by exciting unduly the adrenals and thyroid, cause excessive nutrition, overgrowth, and even giantism. Have we not the giantism of childhood in adrenal hypernephroma and rapid growth in the cretin under thyroid extract? Conversely, destructive or debilitating disorders of the anterior pituitary, by lowering the activity of the adrenals and thyroid, must necessarily entail small stature with deposition of fat and adiposis dolorosa. Do we not use thyroid extract in obesity? Do we not witness also, as symptoms of degeneration of the pituitary, myxedema, lowered oxidation, hypothermia and bronzing? Page after page of perplexing queries could be submitted attesting pointedly to the fact an imported doctrine is not always invulnerable.

All this does not militate in the least against Dr. Cushing's researches or the correctness of his surgical conclusions. His experimental and surgical work is entitled to the greatest appreciation; but it is precisely because I value his work so highly that I would like to see it devoted to the development of something besides mere assumptions.

C. E. DE M. SAJOUS, Philadelphia.

High Enemas—Can a Tube Be Passed Into the Colon?

To the Editor:—In connection with Dr. Horace W. Soper's paper on page 426, and your editorial on page 464 of THE JOURNAL, August 7, I wish to express my appreciation of Dr. Soper's ingenuity and industry, displayed in the scanning of foreign literature. From page 48 of the third edition of Jacobi's "Therapeutics of Infancy and Childhood," I beg to quote as follows: "The great normal length of the sigmoid flexure in the infant and child, which results in its being bent on itself, prevents the introduction of an instrument to a considerable height. It will bend on itself." On page 343 one may read: "The condition of the sigmoid flexure renders the introduction of the instrument beyond the very beginning of the sigmoid flexure, a perfect illusion in many cases. It often happens that an elastic or flexible tube, when introduced to or beyond the third sphincter, bends on itself and reappears at the anus. To facilitate the entrance of the liquid into and beyond the sigmoid flexure, the irrigation should be made slowly and gently, while the pelvis of the infant is raised. The nozzle must be smooth and not thin." Similar statements are found in Jacobi's "Intestinal Diseases of Infancy and Childhood," 1887. The abnormal length and flexures of the sigmoid colon which lend to what Jacobi has called "Congenital Constipation," were first described by him in 1869.

In an article on "Congenital Constipation," which appeared in the Transactions of the American Pediatric Society, vol. vi, page 41 (1894) I wrote as follows: "The article by Jacobi, 'Some Important Causes of Constipation in Infants' is classical, and though it appeared in 1869 (*Am. Jour. Obstet.*, vol. ii), it will repay careful reading and study at the present time." During the twenty-five years of my college assistantship, Dr. Jacobi has annually referred to the difficulty or impossibility of passing elastic or solid tubes through the sigmoid flexure. When felt below the liver, the instrument is not in the transverse colon, but in the sigmoid, which has simply been raised to an abnormal position.

FRANCIS HUBER, M.D., New York City.

To the Editor:—Having observed in THE JOURNAL of Aug. 7, 1909, the article by Horace W. Soper, M.D., of St. Louis, I wish to call attention to the enclosed extracts from a paper read by me before the American Proctologic Society in June, 1904, entitled, "The Present Status of the Flexible Rectal Tube,

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Which Should be Paraphrased Non-utility and Impracticability." I make this request in order that the society may be placed in a proper light before the profession, as having taken the initiative in this matter.

"The members of our society generally have definitely accepted the existence and functions of Houston's rectal valves, we have dilated on their pathologic conditions, but have not reflected what effect they must have on the use of the flexible rectal tube. . . . I venture to assert, that notwithstanding all of our boasted knowledge with regard to these valves, that it is the universal practice with rectal specialists, when ordering or giving a high enema, to use the long rectal flexible tube.

"It occurred to me that if the pathologic function of these valves is to shelve and ease down the fecal matter, and if in a pathologic condition they could become so thickened as to form an obstruction to the passage of the fecal matter, that they must interfere materially with the passage of the rectal tube beyond them. I therefore instituted a series of experiments with the soft rubber tubes, to ascertain the true state of affairs. In a number of instances I introduced the rectal tube, then passed in Tuttle's proctoscope over it, and on turning on the electric light, I found, as I had expected, the rectal tube coiled on itself in the lower portion of the rectum, between the first valve and the anal margin. I have not yet found a single exception to this condition, although, I am willing to admit that occasionally it may pass them. This I should regard more as an accident, than an intended result. . . .

"But why should we depend on such uncertain means, and one attended with so much difficulty in its use, when we always have one, that is so much easier and certain to accomplish the purpose. I refer to the application of the physical law of gravity. A patient should be placed in the knee-chest position, or if too weak, in Sims' position, with the head and shoulders lowered, and the hips elevated with a pillow. The high enema can be given in this position with the most satisfactory results, using a short rectal nozzle. Even in cases of impaction, the water so introduced can be made to distend the bowel, and get beyond the point of obstruction, by sufficiently elevating the bag. By using a large quantity of water, it can be made to run around as far as the ascending colon."

SAMUEL T. EARLE, M.D., Baltimore.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HISTORY OF THE LEUCOCYTE MIGRATION

To the Editor:—Who first saw the emigration of leucocytes through the capillaries, or stated that the polymorphonuclear cells of inflammatory exudates were emigrated from the blood-vessels?

LUDWIG F. GULDNER, Davenport, Iowa.

ANSWER.—Adami, in his monograph on "Inflammation" (Macmillan and Co., 1907) gives the history of this discovery as follows: "By his researches, Cohnheim (1867) forcibly attracted the attention of pathologists to the diapedesis of leucocytes in inflammation—a process which had already been very clearly described years before by W. Addison (1843) and Waller (1846) in England, and yet earlier (though without grasp of the connection between the diapedesis and inflammation) by Dutrochet (1828) in France."

FLECHSIG TREATMENT OF EPILEPSY

To the Editor:—In THE JOURNAL, August 7, page 494, is a paragraph in which is mentioned the Flechsig opium-bromid and baths method of treatment. Please give the details.

J. H. REED, M.D., Sharon, Pa.

ANSWER.—We have received several similar letters asking for details of this method of treatment, concerning the merits of which the various authorities on nervous and mental diseases disagree. The treatment is practically abandoned now, on account of the little benefit obtained in comparison with the dangers run. The Flechsig method is to administer opium for a short time in enormous doses, then to stop it abruptly and follow with large doses of bromids. Ordinary pulveris opii is administered in ascending doses up to 0.3 gm. (5 gr.) three times a day, the maximum quantity being reached as soon after the beginning of the administration as possible. The patient is kept on this maximum dose for six weeks; at the end of that time the opium is stopped abruptly and bromid of potassium or sodium to the quantity of 2 drams daily is given. After a few weeks, varying according to the evidences of bromism produced, the quantity is reduced one-half, and later may be diminished to 30 or 40 grains, and in some cases even less than this in the twenty-four hours. The opium is regarded as a preparation for the bromid treatment. Flechsig warns that the patient should be watched throughout the course of opium administration as one suffering from an acute disease.

H. A. Hare in the 1907 edition of his "Practical Therapeutics" states that the frequency and severity of the fits are materially reduced in this way for several months in some cases but that it does not cause a cure. It succeeds best in old cases and is not useful in recent ones. In the 1901 edition of his "System of Practical Therapeutics" he says: "After a year or two, if the attacks are not kept in abeyance, the opium may be repeated. I have yet to see any detrimental results or sequences of employing this method."

Gowers in his work, "Epilepsy," 1901, asserts that he regards it as doubtful whether the subsequent administration of bromid in such large doses has more influence than it would have without the preceding course of opium. The benefit sometimes seen in old obstinate cases of epilepsy, he says, may be explained by the large doses of bromid administered after a period of freedom from its influence.

Oppenheim, in "Diseases of the Nervous System," 1900, p. 783, says: "On the whole, the results of this treatment are very doubtful, and, in addition, it is not harmless, does not suit those of weakened constitutions, and demands careful watching, and is therefore probably only practicable in a hospital."

Starr, in "Nervous Diseases, Organic and Functional," 1907, p. 755, says: "I have not had good results from this course of treatment. I have known the opium habit to be induced. It is a method which is failing into disrepute. Opium and morphin should be avoided in epileptics."

Mettler, in "Diseases of the Nervous System," 1905, p. 220, says: "The plan is of doubtful efficacy and its dangers are not insignificant. In my own experience, though limited, it was not superior to the use of the bromids alone."

Spratling, in "Epilepsy," 1904, p. 374, states: "Flechsig recommended this treatment only in chronic cases in which the bromids alone had failed and cautions that the patient be carefully watched during the whole course of treatment. In my experience the plan was of little use. . . . The verdict of those who have tried the method is almost uniformly unfavorable, including Donath, Bohme, Landois, Luske, Rathe, Homen, Lichen, Warda, and Bratz."

The Public Service

Medical Department of the Army

Memorandum of changes for week ended August 14, 1909:

Skinner, G. A., major, ordered to Ft. Lawton, Wash., for duty on arrival from San Francisco.

Reynolds, C. R., major, relieved from duty at the Walter Reed General Hospital, Washington, D. C., and ordered to Washington, D. C. for duty.

Shepard, J. L., capt., ordered to duty with militia field exercises, Massachusetts coast, August 14 to 21.

Hartnett, E. H., major, granted leave of absence for 10 days.

Glennan, J. D., major, O'Connor, R. P., capt., Brechemin, Louis, Jr., capt., and Smith, H. M., capt., relieved from duty in the Philippines Division in time to sail Nov. 15, 1909, from Manila, P. I., for San Francisco, Cal.

Baker, F. C., major, ordered to Governor's Island, N. Y., for duty during the maneuvers in Massachusetts, August 14 to 21.

Juenemann, G. F., capt., relieved from duty at Fort McDowell, Cal., and ordered to Fort Logan, Colo., for duty.

Wickline, W. A., capt., ordered to accompany troops from San Francisco, Cal., to Washington Barracks, D. C.

Suggs, Frank, M. R. C., ordered from Fort Niagara, N. Y., to Fort Porter, N. Y., for temporary duty.

Brown, W. E., M. R. C., granted sick leave of absence for six months.

Jackson, T. W., M. R. C., when relieved at Washington Barracks, D. C., ordered to Fort Hunt, Va., for duty.

Hart, J. W., M. R. C., when relieved at Fort Hunt, Va., ordered to Henry Barracks, Cayey, P. R., for duty.

Wallace, G. L., M. R. C., when relieved at Henry Barracks, Cayey, P. R., ordered to Fort Sam Houston, Texas, for duty.

Coffin, H. L., M. R. C., relieved from duty on the transport *Burnside*, and ordered to Vancouver Barracks, Wash., for duty.

Eber, A. H., M. R. C., granted sick leave of absence for 2 weeks.

Usher, F. M. C., major, granted leave of absence to and including Sept. 1, 1909.

Wertenbaker, C. L., M. R. C., relieved from duty at Fort Wadsworth, N. Y., and from temporary duty at Fort Terry, N. Y., to take effect on the arrival at the latter post of Major Chandler P. Robbins, M. C., and will then proceed to Fort Jay, N. Y., for duty, relieving Capt. S. J. Morris, M.C., who on being relieved will return to his proper station, Fort Washington, Md.

Usher, J. T., and Bratton, T. S., majors, relieved from duty as members of the board of medical officers, appointed to meet at Fort Crook, Neb., and Fort Des Moines, Iowa, respectively, for the purpose of conducting examinations of applicants for appointment to the Medical Reserve Corps.

Wells, F. M., M. R. C., ordered to Fort Leavenworth, Kan., for duty with troops to be ordered to Des Moines, Iowa.

Church, J. R., major, left Fort Robinson, Neb., with troops on practice march.

Smith, A. M., major, ordered to Presidio of Monterey, Cal., for duty.

Gunckel, G. I., dental surgeon, ordered to Fort Oglethorpe, Ga., for one month.

Medical Corps of the Navy

Changes for the week ended August 14, 1909:

Rodman, S. S., commissioned surgeon, with rank of lieut. commander, from Dec. 11, 1908.

Peck, A. E., commissioned surgeon, with rank of lieut. commander, from June 12, 1909.

Smith, C. G., commissioned surgeon, with rank of lieut. commander, from July 1, 1909.

Brooks, F. H., commissioned P. A. surgeon, from July 14, 1908.

Reed, E. U., commissioned P. A. surgeon, from Sept. 21, 1908.

Woods, E. L., commissioned P. A. surgeon, from Oct. 14, 1908.

Robertson, Gardner E., appointed acting asst.-surgeon, from Aug. 5, 1909.

Clark, G. F., orders of July 23, modified; ordered to duty at the Naval Hospital, Washington, D. C.

Robnett, A. H., commissioned P. A. surgeon, from March 24, 1909.

McDonald, P. E., P. A. surgeon, unexpired leave revoked; detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Academy, Annapolis, Md.

Dean, F. W. S., detached from the *Maine* and ordered to the *Prairie*.

Seaman, W., P. A. surgeon, detached from the *Prairie* and ordered home to await orders.

Wilson, H. D., surgeon, detached from the *Kearsarge* and ordered to continue other duties.

McCormick, A. M. D., surgeon, detached from the *Maine* and ordered home to await orders.

Reed, E. U., P. A. surgeon, detached from the Naval Recruiting Station, Chattanooga, Tenn., and ordered to the Naval Recruiting Station, Nashville, Tenn.

Donelson, M., asst.-surgeon, detached from the Naval Recruiting Station, Oklahoma City, Okla., and ordered to the Naval Recruiting Station, Chattanooga, Tenn.

Public Health and Marine-Hospital Service

List of changes for the seven days ended Aug. 11, 1909.

Pettus, W. J., Asst. Surgeon-General, granted 27 days' leave of absence from August 16, 1909.

Gassaway, James M., surgeon, bureau order of July 20, 1909, amended to read on being relieved by P. A. Surgeon M. J. White, directed to proceed to San Francisco, and assume command.

Mead, F. W., surgeon, granted 1 month's leave of absence from Aug. 27, 1909.

McIntosh, W. P., surgeon, granted 21 days' leave of absence from Sept. 1, 1909.

Gutteras, G. M., surgeon, directed to proceed to Savannah Quarantine Station for temporary duty.

White, M. J., P. A. surgeon, directed to proceed to Philadelphia, Pa., and assume temporary charge pending arrival of Surgeon H. R. Carter.

Ramus, Carl, P. A. surgeon, on arrival of Asst.-Surgeon R. A. Herring, directed to proceed to Honolulu, Hawaii, and report to the chief quarantine officer for marine hospital duty.

Ramus, Carl, P. A. surgeon, granted 7 days' leave of absence *en route* to station.

Moore, Dunlop, P. A. surgeon, relieved from duty at Honolulu, Hawaii, and assigned to duty at Yokohama, Japan.

Trotter, F. E., P. A. surgeon, leave granted July 8, 1909, for 15 days from July 21, 1909, revoked.

de Valin, Hugh, asst.-surgeon, on the arrival of Surgeon G. M. Gulteras, directed to proceed to Stapleton, N. Y., and report to chairman of board of medical examiners to determine his fitness for promotion to the grade of Passed Assistant Surgeon.

Guthrie, M. C., asst.-surgeon, directed to proceed to Stapleton, N. Y., and report to chairman of board of medical examiners to determine his fitness for promotion to the grade of Passed Assistant Surgeon.

Atilles, Pedro del Valle, acting asst.-surgeon, granted 30 days' leave of absence from Sept. 1, 1909, with pay, and 15 days' leave from Oct. 1, 1909, without pay.

Duffy, Francis, acting asst.-surgeon, granted 6 days' leave of absence from Aug. 10, 1909.

Ryan, N. J., acting asst.-surgeon, granted 2 days' leave of absence from July 1, 1909, and 1 day, July 24, 1909, under paragraph 210, Service Regulations.

Goldsborough, B. W., acting asst.-surgeon, granted 3 days' leave of absence from July 31, 1909, without pay.

Harkin, P. McD., acting asst.-surgeon, granted 10 days' leave of absence from Aug. 10, 1909.

Rowles, J. A., acting asst.-surgeon, granted 25 days' leave of absence from Aug. 7, 1909.

Savage, W. L., acting asst.-surgeon, granted 30 days' leave of absence from Aug. 6, 1909.

Stevenson, J. W., acting asst.-surgeon, granted 12 days' leave of absence from Aug. 17, 1909, with pay, and a further period of 30 days' leave, without pay.

Thornton, M. J., acting asst.-surgeon, granted 4 days' leave of absence, July 8, 10, 11 and 12, 1909, under paragraph 210, Service Regulations.

BOARD CONVENED

Board of medical officers convened to meet at the marine hospital, Stapleton, N. Y., Aug. 30, 1909, for the examination of Asst. Surgeons Hugh de Valin and M. C. Guthrie, to determine their fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Surgeon L. L. Williams, chairman; P. A. Surgeon John McMullen; P. A. Surgeon C. W. Vogel, recorder.

Health Reports

The following cases of and deaths from smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 13, 1909:

SMALLPOX—UNITED STATES

Illinois: Danville, July 25-Aug. 1, 2 cases; Moline, July 24-31, 1 case.
Indiana: Fort Wayne, June 19-26, 7 cases, July 3-10, 4 cases, July 17-31, 34 cases.
Kansas: Wichita, July 10-17, 1 case, July 24-31, 2 cases.
Kentucky: Lexington, July 10-17, 3 cases, July 24-31, 1 case; Newport, July 10-26, 1 case.
Michigan: Saginaw, July 24-31, 1 case.
Minnesota: Duluth, July 23-30, 4 cases.
Missouri: St. Joseph, July 3-24, 15 cases.
Pennsylvania: Philadelphia, July 17-24, 3 cases.
Texas: Fort Worth, July 1-31, 1 case; San Antonio, July 24-31, 1 case.
Wisconsin: Appleton, July 17-31, 17 cases.

SMALLPOX—FOREIGN

Africa: Tripoli, June 19-July 10, 17 cases, 1 death.
China: Hongkong, May 29-June 19, 2 cases, 2 deaths; Tientsin, June 26-July 3, 1 case, 2 deaths.
France: Paris, June 26-July 10, 5 cases.
Indo-China: Saigon, June 19-26, 2 cases, 2 deaths.
Italy: General, July 11-18, 32 cases; Naples, 16 cases, 3 deaths.
Java: Batavia, June 16-July 3, 3 cases.
Portugal: Lisbon, July 17-24, 2 cases.
Russia: Moscow, June 26-July 10, 47 cases, 2 deaths; Odessa, July 3-17, 2 cases; Riga, July 10-17, 6 cases.
Spain: Barcelona, July 12-19, 4 deaths; Valencia, June 26-July 10, 12 cases, 1 death; Vigo, July 10-17, 1 death.
Turkey in Asia: Mercine, vicinity, July 19, epidemic.
Turkey in Europe: Constantinople, July 4-11, 1 death.

YELLOW FEVER

Brazil: Manos, June 26-July 3, 1 death; Para, June 26-July 10, 12 cases, 12 deaths.

CHOLERA—FOREIGN

Indo-China: Saigon, June 12-26, 7 cases, 6 deaths.
Russia: General, July 17-23, 164 cases, 73 deaths; St. Petersburg, 526 cases, 234 deaths.

PLAGUE

Australia: New South Wales, Sydney, May 22-29, 2 cases, 1 death; Queensland, Mackay, June 6, 1 death.
China: Canton, June 12-26, 70 cases, 50 deaths; Hongkong, May 29-June 19, 33 cases, 32 deaths.
India: General, June 19-26, 628 cases, 531 deaths.
Indo-China: Saigon, June 12-26, 8 cases, 5 deaths.
Japan: Kobe, July 3-10, 2 cases, 1 death; Osaka, July 2, 1 case, 1 death.
Trinidad: June 19-July 3, 2 cases, 2 deaths, July 18, 1 case, 1 death.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: State House, Des Moines, September 21-23. Sec., Dr. Louis A. Thomas.

MISSOURI: Kansas City, September 20-22. Sec., Dr. J. A. B. Adcock, Warrensburg.

NEW YORK: Albany, September 21-24. Chief of Examinations Division, Charles F. Wheelock, Albany.

MASSACHUSETTS: State House, Boston, September 14-16. Sec., Dr. Edwin B. Harvey.

Colorado Requires Practical Examinations

Dr. S. D. VanMeter, secretary of the Colorado State Board of Medical Examiners, reports that practical tests are required by that board in the examinations for license to practice in Colorado. These practical tests are in (a) regional anatomy, making use of a living subject; (b) chemistry, particularly the making of a urinalysis; (c) pathology, consisting in the recognition of diseases by the examination of gross and microscopic specimens and (d) symptomatology, or physical diagnosis.

At least four state boards require practical tests in their examinations for license—Colorado, Massachusetts, Ohio and Minnesota. These practical tests form one of the best means of differentiating between graduates of a didactic or quiz-compend college and those who have received a thorough training in laboratory and clinic.

Nebraska State Board Controversy

The newly appointed board of secretaries of the Nebraska State Board of Health is as follows: President, C. P. Fall, M.D., Beatrice; vice-president, H. B. Cummings, M.D., Seward; treasurer, A. L. Muirhead, M.D., Omaha, and secretary, E. Arthur Carr, M.D., Lincoln.

The appointment of this board is being contested by the former board, it is reported, on the ground that, since the legislature repealed the wrong clause in the section of the act referring to the appointment of the state health inspector, and since this act also covers the appointment of the board of secretaries, the entire act was thereby made null and void.

The new board is, of course, the one recognized by the State Board of Health proper, which consists of the governor, the attorney general and the superintendent of public instruction. Mail addressed to the State Board of Health has been opened by the new board following the receipt of a favorable decision

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by P. V. Keyser, the acting assistant attorney general of the Postoffice Department at Washington. The whole matter will probably be tried in the courts within a short time.

New Officers of the Wisconsin Board

The newly elected officers of the Wisconsin State Board of Medical Examiners are: president, Dr. A. B. Bailey, Fennimore; secretary, Dr. John M. Beffel, Milwaukee.

Idaho April Report

Dr. W. F. Howard, secretary of the State Board of Medical Examiners, reports the written examination held at Boise, April 7-8, 1909. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 33, of whom 27 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	PASSED		Per Cent.
College of Physicians and Surgeons, Chicago	(1885)			77
Rush Medical College	(1896)	82.4 ;	(1904)	84.8, 90.1
Chicago College of Medicine and Surgery	(1908)			80.2
Northwestern University Medical School	(1904)			80
Medical College of Indiana	(1898)			76.8
University of Iowa, College of Med.	(1905)	82 ;	(1908)	80.8, 85.1
Keokuk Medical College	(1900)			75.3
University of Michigan	(1892)	85.1 ;	(1896)	78.4
Detroit College of Medicine	(1901)	81.9 ;	(1905)	75
University of Minnesota	(1907)			81.8
St. Louis University	(1905)			75.7
Ensworth Medical College	(1908)			76.8
Barnes Medical College	(1908)			82
Creighton Medical College	(1906)			79.6
Bellevue Hospital Medical College	(1898)			77.5
University of North Carolina	(1906)			86.5
Medical College of Ohio	(1882)	78.3 ;	(1905)	77.7
Jefferson Medical College	(1908)			78.7
University of Toronto, Ontario	(1888)	78.7 ;	(1907)	85.7

FAILED		
Hahnemann Medical College and Hospital, Chicago	(1909)	65.1
Michigan College of Medicine and Surgery	(1895)	61
St. Louis University	(1905)	53.1
Barnes Medical College	(1907)	69.4 ; (1908) 72.3
Chattanooga Medical College	(1903)	69.6

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Life Insurance Companies Working for Better Health Conditions

Following the announcement by Prof. J. Pease Norton of the Committee of One Hundred, that the Metropolitan Life Insurance Company of New York City is beginning a systematic campaign against tuberculosis among its policy holders, comes the announcement of the Provident Savings Life Assurance Society of New York that a bureau has been established in the medical department of the society to assist in guarding the health of policy holders and to be known as the Policy Holders' Health Bureau. The object of the bureau is to increase mortality savings by helping policy holders to prevent disease and to discover disease in time to check or cure it. This assistance is to be offered to policy holders without charge, through the medium of health bulletins, correspondence and free medical examination, at the expense of the company, every two years, of such policy holders as may desire it. After emphasizing the needless waste from illness among the general population, the president of the society states that it is not only the right but the duty of the society to use, within proper limits, the facilities at its command to protect the policy holders from needless suffering and loss of life, and that the results of such a work will soon return the relatively small cost of operating the bureau. It is proposed to issue health bulletins from time to time, giving the policy holders the benefit of recent discoveries and advances in medical knowledge, also to aid them in discovering symptoms of disease in time to effect a cure or to arrest its progress. The society will not, of course, undertake to provide medical treatment for policy holders, such services should be rendered by the local or family physician in each case, but will endeavor to discover disease in time to prevent serious results therefrom. To this end, periodical medical examination by the physicians of the society will be given every two years.

Professor Norton states that the inauguration by the great insurance companies of a general sanitary campaign, is in his judgment, the most important event in the history of life-insurance in fifty years. Obviously, the adoption of such a policy by a few of the insurance companies will eventually lead to its adoption by all, since the advantages to the policy holder of such a plan are apparent. It will only be necessary for the medical profession to demonstrate the material advantages of good health and the wastefulness of disease and sickness, to inaugurate an effective campaign against preventable disease.

British Medical Association Warns Prospective Medical Students

In a recent issue of the *British Medical Journal* containing the transactions of some of the branches of the British Medical Association, is an especially interesting circular, issued by the Salford Division and submitted to the council of the association with a view to securing its circulation in the public schools. The council as yet has taken no action on the matter, but transmits the circular to the representative meeting for consideration. The circular is of interest, as showing the economic conditions existing in the medical profession in Great Britain. After stating that the increase in the number of medical students in the last year shows the ignorance on the part of parents of the present economic crisis in the profession of medicine, the circular states:

"In general practice, to which nine-tenths of the entrants are destined, the field of work, and therefore the income, has been contracted and is bound to contract as disease becomes more and more preventable. A single instance of it: Dr. Davy, in his presidential address to the British Medical Association said: 'My predecessor told me that fifty years ago his average income from attendance on cases of typhoid was £300 ($1,500) a year. For the past few years my income from that source has hardly averaged five guineas.'"

The *British Medical Journal* says: "The average income of the practitioner has been estimated at from £200 to £250 a year. The chances of being able to save even to the extent of the capital expended in education are, in a large proportion of cases, slight, while reasonable provision for old age, after family expenses are met, is difficult and often impossible. This after a training lasting seven years and costing from £1,000 to £1,200 ($5,000 to $6,000), and even this pittance is only gained by working seven days a week and being on duty twenty-four hours a day, with the natural result that the death rate in the medical profession is higher than in any other, the army excepted.

"In France and Germany it has been found needful to issue letters of warning to intending students, as the results of practice are equally unsatisfactory there.

"We would, therefore, ask you to urge intending entrants to inquire further before joining so overcrowded a profession."

Marriages

HERMAN A. WHITE, M.D., to Miss Nellie Phelps, both of Clinton, Iowa, August 5.

ROBERT SLOAN IRWIN, M.D., to Miss Nora Elizabeth Hawver, both of Denver, July 14.

CALEB N. ATHEY, M.D., Baltimore, to Miss Helen Skipwith Wilmer, at Baltimore, August 2.

WALTER H. DARLING, M.D., Minneapolis, Minn., to Miss Florence Girard, of Boston, July 4.

JOSEPH E. POWLEY, M.D., to Miss Caroline Robertson, both of Altoona, Pa., at Philadelphia, July 29.

JOHN P. YOUNG, M.D., Richburg, S. C., to Miss Constance Witherspoon, of Lancaster, S. C., June 23.

LOIZA ELWELL, M.D., Battle Creek, Mich., and Philip Johnstone, of Belfast, Ireland, at Detroit, July 31.

WILLIAM E. SUNDERLAND, M.D., Estancia N. M., to Miss Hazel F. Rietz, of East Dubuque, Ill., at Santa Fe, N. M., August 4.

Deaths

Sarah Hackett Stevenson, M.D. Northwestern University Woman's Medical School, Chicago, 1874; a member of the American Medical Association till her enforced retirement through illness; who has been an inmate of St. Elizabeth's Hospital since 1906; died at that institution from paralysis, after an illness of three years, August 14, aged 64.

Dr. Stevenson was one of the first women in America to take up the study of medicine and to practice the profession, and had a hard fight in overcoming the early prejudices against her sex. As a club woman and philanthropist, Dr. Stevenson was well known; she was a member of many prominent women's clubs, among which were the Chicago Woman's Club and the Twentieth Century and Fortnightly clubs. She was instrumental in founding several well-known institutions, among them being the Chicago Maternity Hospital and Training School for Nurse Maids, and the Illinois Training School for Nurses.

At various times she had held important public positions, having been a member of the Illinois State Board of Health and professor of obstetrics at the Woman's Medical College, her alma mater. She had been attending gynecologist to Cook County Hospital; and was on the attending staffs of the Mary Thompson, Frances Willard and Maternity Hospitals.

SARAH HACKETT STEVENSON

Ignatius Donnelly, M.D. Jefferson Medical College, Philadelphia, 1883; formerly secretary of the Minnesota State Medical Society; a member of the staff of the City and County Hospital and St. Joseph's Hospital, St. Paul; a specialist on diseases of the nose, throat and ear; for many years a member of the American Medical Association; who went to Butte, Mont., two years ago to gain relief from heart disease, died July 31, in St. Mary's Hospital, Minneapolis, from heart disease, aged 51.

Matthew Turner Newton, M.D. Yale University, New Haven, Conn., 1851; in 1853 a member of the legislature from Salem, Conn.; assistant surgeon of the Third, and later surgeon of the Tenth Connecticut Volunteer Infantry during the Civil War; a member of the legislature from Suffield in 1893; president of the Suffield (Conn.) Savings Bank for twelve years; died at his home, July 24, from senile debility, aged 80.

Pliny Brett Morgan, M.D. Pulte Medical College, Cincinnati, 1881; of Berkeley, Cal.; a specialist on tuberculosis; and for many years professor of physical diagnosis and diseases of the lungs in Hahnemann Medical College, San Francisco; died at the home of his son in Ben Lomond, Cal., July 29, from heart disease, aged more than 70.

Jacob Meyer Hage y, M.D. Rush Medical College, Chicago, 1862; for many years a member of the American Medical Association; once president of the Livingston County, Ill., Medical Society; a member of the American Public Health Association, died at his home in Mount Morris, N. Y., August 3, from cerebral hemorrhage, aged 76.

Erskine Boies Fullerton, M.D. Starling Medical College, Columbus, 1866; of Columbus, Ohio; a member of the American Medical Association; for many years professor of materia medica and therapeutics in Starling Medical College; died suddenly in the Good Samaritan Hospital, Portland, Ore., July 31, from cholera morbus, aged 66.

Francis Everard Roche, M.D. Queen's University, Dublin, Ireland, 1867; formerly surgeon major, British reserve military forces; a fellow of the Pathological Society, London; a member of the British Medical Association, and Utah State Medical Association; died at his home in Ogden, Utah, July 31, from septicemia, aged 67.

James A. Pinson, M.D. Medical College of Indiana, Indianapolis, 1872; an honorary member of the Vigo County (Ind.) Medical Society; a veteran of the Civil War; and a member of the local board of U. S. pension examining surgeons; died at his home in Terre Haute, June 22, from senile debility, aged 73.

George Mays, M.D. University of Pennsylvania, Philadelphia, 1861; a member and once president of the Philadelphia Medico-Legal Society; assistant surgeon and surgeon to the Ninety-third Pennsylvania Volunteer Infantry during the Civil War; died at his home in Philadelphia, August 1, aged 63.

Joseph W. Southall, Medical College of Virginia, Richmond, 1860; formerly superintendent of Public Instruction of Virginia; a Confederate veteran; for eight years a member of the state senate; died at his home near Jetersville, August 2, from cholera morbus, aged 77.

Cranston H. Dodd (license, Iowa, 1886); formerly postmaster of Koszta, Iowa, and coroner and justice of the peace of Iowa County; died in a hospital in Iowa City, August 2, from hemorrhage following an operation for pancreatic cyst, aged 62.

Roscoe Arthur Nash, M.D. State University of Iowa, Iowa City, 1894; formerly a member of the American Medical Association; for many years house surgeon at Mercy Hospital, Tipton; died at his home in Tipton, Iowa, August 1, from tuberculosis, aged 42.

Susanna Hayhurst, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1857; of Philadelphia; who had been connected with the Woman's Hospital of Philadelphia for thirty-three years, died in that institution, August 7, from senile debility, aged 89.

William C. Doane, M.D. Castleton (Vt.) Medical College, 1846; who held a position in the Department of the Interior, Washington, D. C., and was afterward inspector of prisoners during the Civil War; died at his home in Elmira, N. Y., August 2, aged 83.

Edward F. Menger, M.D. Medico-Chirurgical College of Philadelphia, 1884; a member of the Medical Society of the State of Pennsylvania; physician to the Old People's Home; died at his home in Philadelphia, August 3, from acute nephritis, aged 51.

Edward F. Paramore (registration, Wis., 1899); for fifty-three years an eclectic practitioner; a veteran of both the Mexican and Civil Wars; died at his home in Oconto, Wis., August 1, from paralysis, aged 78.

Samuel Joseph Patterson, M.D. Bellevue Hospital Medical College, New York City, 1867; of Dunlap, Iowa; died at the Methodist Hospital, Omaha, Neb., June 18, from postoperative pneumonia, aged 65.

Barnett P. Watts, M.D. College of Physicians and Surgeons, Keokuk, 1871; a member of the Illinois State Medical Society; died at his home in Randall (East Galesburg), Ill., July 31, aged 62.

Peter E. Jones, M.D. Medical Faculty of Queen's University, Kingston, Ont., 1866; formerly Indian agent of the Mississaugas of the New Credit, died at his home in Hagersville, Ont., June 29.

Joseph R. McLeod, M.D. College of Physicians and Surgeons, Keokuk, 1877; a pioneer practitioner of Findlay, Ohio; and a veteran of the Civil War; died at his home July 30, aged 75.

John H. Cox, M.D. Cincinnati College of Medicine and Surgery, 1854; a veteran of the Civil War; died at his home in Guthrie, Okla., July 8, from cerebral hemorrhage, aged 86.

Asher D. Atkinson, M.D. New York, 1840; one of the founders of the American Numismatic Society; died at his home in New Brunswick, N. J., June 26, aged 88.

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Alfons Edler von Rosthorn, professor of gynecology and obstetrics at Vienna, where he succeeded Chrobak in 1907, died recently. He was one of the distinguished foreign guests at the Boston session of the American Medical Association in 1906, at which time a biographical sketch and a portrait were published in THE JOURNAL, May 5, 1906, pages 1372 and 1375. He delivered an address on "Uterine Cancer," and was made an honorary member of the Association. For the last seven years he has been associated with A. Martin in the publication of the *Monatsschrift für Geburtshülfe und Gynäkologie.* The second part of his important work on gynecology, in collaboration with Chrobak, which forms Vol. XX of Nothnagel's "System of Medicine," was published last year, the special subject being malformations of the female genital organs, classified from the etiologic standpoint. He was a contributor to many medical journals and wrote important chapters in Virt's "Handbook of Gynecology" and von Winckel's "Handbook of Obstetrics." His strong personality left a marked impression on his students and on all those brought in contact with him. He was born in Vienna in 1857 and had a professorship in turn at Prague, Graz and Heidelberg before he accepted the call to Vienna. He had many friends in this country and was the brother-in-law of Dr. C. S. Bacon of Chicago.

Society Proceedings

COMING MEETINGS

Amer. Association of Obstetricians and Gynecologists, Fort Wayne, Ind., September 2.
Amer. Electrotherapeutic Association, New York, September 14-16.
Colorado State Medical Association, Estes Park, September 19.
Michigan State Medical Society, Kalamazoo, September 15-16.
Missouri Valley, Med. Society of, Council Bluffs, Ia., September 9-10.
New Mexico Medical Society, Roswell, September 15-16.
Pennsylvania, Med. Soc. of State of, Philadelphia, Sept. 27-Oct. 1.
Utah State Medical Association, Ogden, September 21-22.
Wyoming State Medical Society, Cheyenne, September 1-2.

STATE MEDICAL SOCIETY OF WISCONSIN

Sixty-third Annual Meeting, held at Madison, June 30-July 2, 1909

(Concluded from page 480)

Cerebral Surgery

DR. J. L. YATES, Milwaukee: Distinct emphasis should be laid on the underlying physiology, and a great many questions will arise in daily practice, such as apoplexy, meningeal hemorrhage in the new-born and cerebral tumor.

DISCUSSION

DR. ARTHUR W. ROGERS, Oconomowoc: It is disastrous to try to lower blood pressure in cases of intracranial tension. Cerebral hemorrhage is known to be amenable to treatment, but a decompression operation is often advisable. In regard to cerebral tumors: In diagnosis pay especial attention to headaches, vomiting and condition of the eye grounds, examining for choked disc, thus making early diagnosis.

DR. N. M. BLACK, Milwaukee: In cases of suspected intracranial pressure, an immediate and prompt examination of the eye grounds by means of the ophthalmoscope and perimeter is important, and the earliest possible diagnosis should be made, so that surgical relief may be promptly given.

Address in Surgery: The Surgical Management of Handicapped Patients

DR. GEORGE W. CRILE, Cleveland, Ohio: Handicapped cases now largely constitute the mortality in surgical operations. Many patients with Graves' disease have been frightened to death. The psychic factor must be given special consideration. Cocain properly applied to nerve trunks affords absolute protection. The handicap of hemorrhage is now well under control by the use of direct transfusion of blood, injection of serum and special clamps. In the entire domain of medicine there is no subject so neglected, so badly done, with so much needless distress and disaster as the administration of anesthetics. The untrained anesthetist invites disaster. The administration of the anesthetic ranks close in importance to the work of the operating surgeon. Nitrous oxid with oxygen is excellent, especially in short operations, in which there is a strong contraindication to ether or chlorform. The shock is comparatively slight. The advantage of nitrous oxid over ether is greater when the handicap is in the central nervous system than when the handicap is in the heart. Scopolamin and morphin prior to gas anesthesia form an agreeable adjuvant; but gas with scopolamin and morphin should be reserved for certain handicapped patients, in whom it has been abundantly proved that this combination is distinctly safer and incidentally incomparable as to comfort. As an illustration, in patients with senile or diabetic handicap, use gas or oxygen anesthesia in amputations of lower limbs, cocainizing the sciatic nerve, and making a feather edge division of tissue. Similar careful work may render successful surgical treatment of cancer in the very aged, and when there is great hemorrhage transfusion of blood should be employed. We must enlist new and fundamental methods in these cases, and to accomplish this we require the use of greater facilities in the hospital, and a greater number of assistants, and the entire surgical resources of the hospital must be so mobile as to be concentrated at any moment on the fate of the patient. Surgery will then offer relief to a large number of patients who are now refused operation, or who, if operated on, succumb.

Experimental Investigation of Cancer

DR. C. H. BUNTING, Madison: This is one of the greatest problems in medicine. The scientific world has been criticized for directing its efforts rather to the cause than to the cure of cancer. But the criticism is scarcely deserved, as much work is being done in both directions. The causation of cancer is still unknown. Much has been expected from recent experimental methods, but as yet the results are disappointing. Cancer is pandemic, extending from the poles to the equator; although it is particularly a disease of the temperate zones. The negro is much less susceptible than the white race. France leads the world in percentage of cancer. Over 60 per cent. of cases occur in females. The greatest number of cases occur after 45, and the average age in the United States is 58. Hard labor out of doors gives susceptibility to cancer. More cases occur in small cities than in large. Wooded, hilly regions give undue proportion of cancer cases. Analysis of cases shows definite foci, groups of cases, cancer houses and cancer streets. It is a question whether or not cancer is really on the increase. The apparent increase is due to greater length of life, more exact diagnosis and closer statistics. Yet the first case of proved contagiousness of human cancer has yet to be reported. Chronic irritation is the most important predisposing if not actual cause of cancer. Note the frequency of cancer occurring in the scar of ulcer of the stomach, in the gall bladder following gallstones, and as the result of *x*-ray burns. Operation in this precancerous stage is often indicated as a preventive. Pathologic study as yet has disclosed no organism to be associated with cancer; there is no evidence that cancer is produced by a parasite. Those cells which become cancerous first show a degeneration of the protoplasm of the cell which causes a change in the nucleus. Jensen, in 1903, discovered that he could transmit cancer from one mouse to another by inoculation. The cancerous material which he thus produced in 1903 is still alive and growing in many of the cancer laboratories of the world. If any parasite existed it must be coextensive with the cell, because fragments of cells when inoculated on mice will not grow; but that a parasite should be of the same size exactly as the cell seems absurd. Cancer cells show great resistance to the action of the cold. The tumor cell of cancer is practically immortal. Artificial immunity to cancer has been produced in laboratories, in the lower animals. Jensen secured a serum from the rabbit which will cure cancer in mice. Dr. Crile has protected inoculated dogs by injecting the blood of immune dogs. It is along these lines of immunity that a cure for the disease is hoped for, but so far the work has been unsuccessful. It is interesting to note that the immunity once obtained renders the animal immune not only to the type of tumor injected, but to all types of malignant tumor, which again demonstrates that we are dealing not with a parasite, but with a biologic disease. The results experimentally have been unsatisfactory up to this point, but there is hope that we may yet find a cure for, even though we do not discover the cause of cancer.

Pompeian Surgical Instruments; with Exhibition of Instruments

DR. L. F. FRANK, Milwaukee, exhibited replicas of the collection of ancient surgical instruments taken from the ruins of Pompeii, including probes; spatulæ, curettes, traction and sharp hooks, perforaters, forceps, rectal specula, uterine trivalve and quadrivalve specula, trocars, cannulæ, phlebotomes, scissors, fixation forceps, epilating forceps, calculi extractors, male and female catheters and dilators. These instruments were beautifully made, usually of bronze, and were very similar to instruments designed for similar purposes and at present in use. While, however, the ancients performed Cesarean section, hysterectomy, laparotomy, lithotomy, nephrectomy and herniotomy, yet their surgery was, of course, largely confined to minor operations.

Report of the Recent Epidemic of Spinal Paralysis in Wisconsin

DR. JACOLYN MANNING, Eau Claire: A careful examination of all the facts at my disposal shows that anterior poliomylitis is a highly contagious disease, and that this particular epidemic was the result of an infection which journeyed along the main highways of travel from the Old World to the Eastern United States and thence to the Middle West.

DISCUSSION

DR. C. M. ECHOLS, Milwaukee: It is difficult to investigate this subject properly owing to the failure of physicians to report data. Little help can be secured from state boards of health in investigating this disease. They have statistics on mortality but not on morbidity. The etiology of the disease is doubtful. There is no symptom-complex by which we can make a diagnosis until after the damage is done. The disease is likely to attack children in perfect health and living under sanitary conditions as well as others. This is a crippling as well as a killing disease, from 50 to 60 per cent. of those attacked becoming permanently crippled.

DISCUSSION

DR. C. A. HARPER, Secretary State Board of Health: It is now a settled proposition that this is a disease of gastro-intestinal origin. There seems to be a strong contagious element in the disease. Under present circumstances quarantine seems to be the only remedy.

DR. L. W. JUERGENS, Portage: I would recommend the use of static electricity, what is called the wave current, instituted soon after the acute stage has been passed. Under this treatment patients usually recover the use of their paralyzed limbs.

Address in Medicine: Bearings of Occupational Conditions on Medicine

DR. DAVID L. EDSALL, Philadelphia: We have a marvelous dearth of knowledge and great apathy shown in this country regarding these conditions, and an unhappy lack of regulation. This is to be contrasted with the activity shown in European countries and the excellent laws protecting the workingman in his occupations. I might cite an instance of one firm that makes an ingenious safety device and sells it, but it is not used in that firm's factory. Instances of this character should make the people of the United States bow their heads in shame, especially when we compare our disgraceful conditions with the excellence abroad. Physicians are the only persons with some scientific information who can observe the effect on public health of these conditions, and from whom the information should emanate which will lead to a betterment in the regulation of these occupational conditions.

Treatment of Syphilis

DR. O. H. FOERSTER, Milwaukee: Mercury given for two or three years, combined with iodid during the third year, is still the accepted treatment of syphilis. The abortive treatment has proved a failure. Treatment should be instituted before the development of lesions in all cases in which the spirochaeta is found. Atoxyl is inferior to mercury in its control of symptoms and is not devoid of danger. Circumstances should determine the choice of the method of administration of mercury. Subcutaneous and intramuscular injections are finding favor. They are accurate and prompt, not entirely free from danger and possess the disadvantage of having to be repeated at short intervals. Two and one-half years' vigorous treatment of the disease is considered sufficient in this country to effect a cure. The Wassermann test is difficult of application and appears to stand in direct ratio to the length and vigor of treatment. It can not be said that at the present time the test is conclusive as a prognostic measure to determine a cure.

Treatment of Chronic Gonorrhea

DR. E. A. FLETCHER, Milwaukee: Gonorrhea untreated does not tend to recovery, but rather to progression. Many parents with chronic gonorrhea have exacerbations during treatment, but this does not prevent ultimate recovery, nor are such relapses indications for cessation of the treatment. Our purpose in treatment is not only to eliminate the gonococcus but also to restore the tissues to normal so far as possible. The discharge should be reduced to the minimum by daily irrigations. Injections and instillations are inferior to irrigations. Narrow meatuses are incised and suppurating ducts opened or cauterized. Infiltrations are treated by dilation. Medicated bougies are to be condemned, and ointments are usually of little service. When chronic prostatitis exists, massage of the seminal vesicles is advisable, followed by bladder irrigations and occasional posterior dilatation.

The Sociologic Aspect of the Venereal Diseases

DR. P. F. ROGERS, Milwaukee: Over 90 per cent. of our young men stray from the paths of virtue before marriage; 60 per cent. contract venereal diseases which are difficult to cure. More wives than prostitutes have venereal diseases, innocently contracted from husbands; thousands of unborn babes are annually killed by prenatal infection; 60 per cent. of the blindness in the country is due to venereal disease. One-eighth of all cases in New York hospitals are venereal; 200,000 infected persons walk the streets of New York daily. These diseases burden society with incompetence. What are we going to do about it? The fundamental requirement is knowledge of how such diseases are acquired and transmitted. Teach the young boy and girl in the school, by a process of natural induction, by a slow evolution and unfolding of the subject, to know the truth about themselves and about the reproduction of the race, just as they are taught the mechanism of the fertilization, reproduction and development of flowers in botany. Let this instruction lead naturally at the age of puberty to a study of sexual physiology and hygiene; inculcate feelings of the highest respect and reverence for Nature's most wonderful secret, but let it no longer be a secret, to be hinted at, guessed at, giggled over and learned all distorted from contaminating sources. Teach the young man the manliness of self-restraint and virtue, and the falsity of the double standard of morality which condones in man what it condemns in woman, and at the same time teach him plainly the consequences of vice. Put innocent womanhood on its guard, and manhood on its honor to protect woman in the sacred relations of wedlock as carefully as she would be shielded from violence from without. Teach parents, by special lectures in the schools, to train their children as carefully in matters pertaining to sex as in deportment and religion; let mothers learn the wide difference between innocence and ignorance. Let physicians be diligent in disseminating the truth in season and out of season; and let pulpit and press break silence, lift the dense pall of ignorance, mystery and superstition that has rested so long on a subject that so vitally concerns society; let in the clear sunshine of intelligent enlightenment and truth, and we shall have a cleaner, purer, healthier and happier citizenship than the world has ever known.

DISCUSSION

PRESIDENT GILBERT E. SEAMAN, Milwaukee: We should emphasize on every occasion the fact that gonorrhea is so frequently the cause of blindness. It has been estimated that from 25 to 33.3 per cent. of all cases of blindness are due to gonorrheal infection at the time of birth, and this infection can be absolutely prevented.

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DR. J. A. BRADFIELD, La Crosse: Whatever is done on this subject must come from the medical profession. I have been utterly disgusted with the teaching of our religious brethren on this subject, many of whom show woeful ignorance of its fundamental principles, on which it is their duty to be well posted. Religious teaching does not reach the root of the subject. Proper instruction in sexual physiology will do more toward the upbuilding of our nattion than anything else.

Detection of Tubercle Bacilli in the Blood

DRS. M. P. RAVENEL and KARL W. SMITH, Madison: About three months ago Rosenberger, of Jefferson Medical College, reported the finding of tubercle bacilli in the blood of patients in whom there were no signs or very slight signs of tuberculosis; and gave this out as a method of early diagnosis at a time when the disease would be readily curable. An examination of the blood of 18 tuberculous patients by this method, which is a very simple one, failed to demonstrate the tubercle bacillus in the blood in a single case. This investigation has been confirmed by reports from all over the world, and the only conclusion that can be reached is that the Rosenberger method is of no value.

Resection for Tuberculosis of the Hip Joint

DR. H. GREENBERG, Milwaukee: Cases suitable for resection are as follows: Cases of hip tuberculosis which, owing to mistaken diagnosis and hence, misdirected therapeutics have been allowed to progress until considerable destruction, abscess formation, and even mixed infection have occurred. There are other cases which despite early and correct diagnosis and diligent application of proper conservative treatment progressively go on with more destruction of tissue, abscess formation and grave constitutional symptoms. Another class of patients apparently yield to accepted therapeutics but continue from time to time to have renewed acute attacks, perhaps many years after the original one. In still another class the course is so rapid and virulent that nothing but radical procedure can save life or limb. When amyloid disease becomes evident or when extensive necrosis has occurred resection is especially indicated. In short, as soon as it becomes manifest that the recuperative powers of the patient are not sufficient to overcome the ravages of the disease, showing that a retrogressive process is going on, operation is positively indicated.

DISCUSSION

DR. H. E. DEARHOLT, Milwaukee: Satisfactory results in the treatment of tuberculous joints do not depend so much on the technic of the operation as on the general hygienic conditions.

Other Papers Read

The following papers were also read: "Intravenous Therapy," by Dr. A. N. Baer, Milwaukee; "Neglect of the Sacro-iliac Articulation by the General Practitioner," by Dr. Edward Evans, LaCrosse; "Treatment of Acute Gonorrhea," by Dr. D. J. Hayes, Milwaukee; "Vaginal Hysterectomy; A New Operative Technic to Establish a Sound Pelvic Floor and to Prevent Cystocele," by Dr. Ralph Elmergreen, Milwaukee; "The Physician and the Child," by Dr. L. R. Sleyster, Appleton; "Present Status of the Ocular Tuberculin Reaction," by Dr. S. G. Higgins, Milwaukee.

NEW JERSEY STATE MEDICAL SOCIETY

Annual Meeting held at Cape May, June 23-25, 1909
(Continued from page 577)

Indications for the Induction of Labor, Instrumental Delivery through the Vagina, and Cesarean Section

DR. E. P. DAVIS, Philadelphia, said that the cases may be divided into those that have had the test of labor and those that have not. In patients who have not had the test of labor, labor should not be induced because of pelvic deformity. Whenever, by spontaneous efforts, the presenting part did not engage in the pelvis, the application of forceps was to be declined. An effort should be made to stimulate the patient's expulsive forces. If the parents place great value on the life of the child, labor should not be induced, because of the high fetal mortality; but if this is not the case, the best time for the induction of labor is at the thirty-fourth week. Delivery by abdominal section should be undertaken only when mother and child were in good condition, and no previous attempts to deliver had been made by forceps, version or any other means. When the mother was infected in long and impossible labor, delivery by Porro's operation offered the best chance for the mother. Occasionally, children, though badly bruised and injured by previous attempts at delivery, were saved by this operation.

Indications for Interference during Labor

DR. SIMON MARX, New York: In my opinion one gift that is possessed by very few obstetricians is the faculty of knowing both the how and the when for operative interference. I think that the operator should keep in mind the following: (1) The study of the woman before labor. (2) A positive appreciation of the position and presentation of the fetus and its relation to the pelvis. (3) The constant control of the fetal heart action and the maternal condition. (4) Interference only when there are positive indications which warrant such interference.

In estimating the safety of the unborn child the constant regularity of the heart beats is of undoubted value, while as regards the mother the pulse and temperature play a prominent part. Never interfere with labor save (1) when the mother shows symptoms of beginning exhaustion or (2) exhaustion of the fetus. To cope successfully with such an emergency as a sudden irregularity of the fetal pulse with a discharge of meconium from a woman whose os was hardly distended I doubt if one could operate quickly enough or deliver with such rapidity as to succeed without producing dangerous lesions. I think that when on examination a neurotic or spastic condition of the os is found with sharp edges, chloral should be given in divided doses up to three grams. In cases in which during the first stages there was danger of lagging pains and exhaustion, I frequently have found opium of good service.

DISCUSSION ON INDUCED LABOR

DR. J. WATSON MARTINDALE, Camden, said that in women who have not had the test of previous labor, labor might go on without interference, even if there were considerable pelvic deformity. In those who had had the test of previous labor, he would unhesitatingly suggest the Cesarean section. Dr. Martindale said that there were more lacerations occurring in primiparæ than physicians usually think, as they often examine the skin perineum without inspecting the vagina. The number of lacerations in women delivered before his arrival was no greater than in those delivered when he was present. He had frequently felt the perineum tear while he was doing his best to prevent it. He described the technic of pubiotomy, and said that the indications were a true conjugate of three inches and a half, and possibly three and one-quarter. He did not agree with Dr. Marx that the subject of obstetrics is insufficiently taught in medical schools. On two occasions Dr. Martindale has found it necessary to induce labor on account of the uncontrollable vomiting in pregnancy. He had found calomel, in small, divided dose, of great benefit in threatened eclampsia. He thought that frequent examinations tended to produce sepsis, and that to apply the forceps before there was complete dilation of the os was likely to result in laceration of the cervix. On the other hand, it was possible to be too tardy in applying them. He said that the transverse diameter was materially increased by laying the woman on her back with her knee flexed on her thighs, and her thighs on her abdomen, and instructing her to pull on her knees. When a woman was suffering from severe labor pains and there was slow dilation of the os, he gave her enough morphin to deaden the pain.

DR. ELLIS W. HODGES, Plainfield, wondered whether methods for the quick delivery of women were not often intended more for the convenience of the operator than for the good of the patient, although he thought that one should interfere before the mother was so exhausted by the pain, shock, and fatigue

that convalescence would be indefinitely prolonged. The nervous type of women, he said, often suffer with uterine inertia. The uterus plays out after a time, and he thought that in such cases the physician was warranted in bringing on labor. In case of an occipito-posterior presentation, he said, the only thing to do was to pull pretty hard. In case of rachitic dwarfs, nothing but Cesarean section should be attempted. If the diagnosis of placenta prævia is made early, he thought that labor should be brought on before the seventh month; but if the patient had gone to full term, one should at once plug the cervix and do Cesarean section. In cases of eclampsia, the uterus should be emptied at once. If the cervix were hard, this should be done by Cesarean section.

DR. EDWARD J. ILL, Newark, did not approve of vaginal Cesarean section. He had seen, also, several cases of incurable vesicovaginal fistula due to high forceps delivery. He thought that the majority of patients with deep cervical tears remain invalids for the rest of their lives. In placenta prævia, when the bag of membrane could be felt anywhere in the vagina, it was not necessary to resort to prompt Cesarean section. If eclampsia came on in the seventh or eighth month, Cesarean section should be done; but not the vaginal Cesarean section, the results of which had been very disastrous.

DR. RICHARD C. MORRIS, Philadelphia, thought that the importance of internal pelvimetry had been exaggerated; but he thought, also, that no physician had a right to attend a primipara without a knowledge of the size and shape of her pelvis, or to attend a multipara who had had a previous difficult delivery, without having studied the case from the standpoints of her previous labor and present physical condition. He said that it was impossible to learn these measurements accurately without the administration of an anesthetic. He made an appeal for a more general recognition of the value of induced labor, and said that the time would come when every woman with a conjugate diameter of four and a half centimeters, or less, would be submitted to Cesarean section. He had had great success in saving many patients from the major operation by means of induced labor, the practice of which also reduced the number of cases of forceps delivery and version. He agreed with the view that the forceps should not be applied to the unengaged head, as a general rule; but qualified this by saying that it should not be done unless one knew the pelvic diameter and the woman had been in labor pains for two or three hours. In a difficult forceps operation, the patient should be kept profoundly anesthetized during the third stage, and allowed to come out of ether just before the final delivery, the uterus then being strengthened by a dose of ergot. He did not think that quinin had any more effect than a glass of wine, acting as a general stimulant. In regard to placenta prævia, he said that he had yet to see a cervix so rigid and tight in a case of placenta prævia that had produced hemorrhage as not to permit him to pass the index finger readily through the cervix. He believed that in such cases Cesarean section had an exceedingly narrow field. In eclampsia, he thought that vaginal Cesarean section was not indicated in all cases. It should be performed in cases in which the condition came on without warning.

DR. L. DAVIS said that if the test were made, it would probably be found that large numbers of lacerations occurred in both the anterior and the posterior segment. Failure to close lacerations in the anterior segment resulted in subsequent prolapse of the urethra, dystocia, and other minor troubles. If uterine inertia existed, it should be treated before delivering the patient. He was not in favor of giving ergot until the uterus had been emptied, but he approved of the use of strychnin. Section should be done in placenta prævia only when there had not been severe hemorrhage, when the child was viable, and when hospital facilities were at hand. Eclampsia tended to cure itself. He had not done vaginal Cesarean section, which he considered a dangerous operation. He considered the old treatment of placenta prævia satisfactory, if one did not care about the child. In taking the pelvic measurements, he thought it well to measure across the two processes of the ischia, and also the intertuberosity distance. He considered elective surgery the surgery of the future.

(To be continued)

AMERICAN ORTHOPEDIC ASSOCIATION

Twenty-Second Annual Meeting, held at Hartford, Conn., June 15-18, 1909

(Concluded from page 588)

Preliminary Study of the Mechanics of the Upright Position, With Especial Reference to Backache. (A Combined Orthopedic and Gynecologic Study)

DRS. R. W. LOVETT and E. REYNOLDS, Boston, described a method for automatically determining the center of gravity of the individual in the upright position. The relation of the center of gravity to the hip joint, sacroiliac joints, feet, etc., they contended, determines the amount and character of back strain. They studied and formulated the effect of corsets and high-heeled shoes on the balance of the body and on the position of the center of gravity, and exhibited charts illustrating this.

DISCUSSION

DR. A. FREIBERG: What does displacement of the center of gravity mean? Has the proper method been adopted for correcting what is a pathologic state of affairs? I have heard nothing of what put the center of gravity forward. The logical thing to do is to go at the cause and correct it. I have not yet recovered sufficiently from my astonishment to swallow, with composure, those high heels and corsets which I see pictured on the wall.

DR. SAYRE: Undoubtedly many of our cases of backache are due to intrauterine and intrapelvic causes, and many of the pelvic abnormalities come from abnormal positions held on account of deficient muscular force. The chief use of a corset is to keep the bands of a woman's skirts from cutting into her, as a woman does not have her clothes hung from suspenders. I have had difficulty in getting corsets made loose enough over the iliac crests not to be uncomfortable when they are tight enough around the buttocks.

DR. WILSON: Would similar conditions existing in a man be met by the application of some form of corset?

DR. LOVETT: We have simply presented a method that we believe is going to be of some use in elaborating the question of why the center of gravity is too far forward. We are sure that the corsets carry the center of gravity back and that high-heeled shoes also do this. In my practice I use corsets on men, just as in women, but less frequently, because one sees fewer backaches in men.

DR. REYNOLDS: We must regard corsets as merely a temporary means of relieving the acute stage of static backache. In the cases that I have seen I have first relieved the cause in operating on the abdominal condition, and have used the corset to carry the patients beyond the backache, and then let them drop it. Bad corsets produce static backaches, and these can not be relieved so long as the bad corset is worn. We must learn to produce a good corset that is sightly and is near enough to the prevailing fashion to induce the patients to wear it.

Relation of Posture to Human Efficiency and Influence of Poise on the Support and Function of the Viscera

DR. JOEL E. GOLDTHWAIT, Boston: The human body is a delicately balanced organism, and no one part can be used with undue strain without straining other parts and wasting energy. In normal balance the muscles and ligaments are used without undue strain, and the movements are made with the minimum expenditure of energy. Not only is the correct balance of importance because of the effect upon the joints, bones, muscles and ligaments, but also because of the interference with visceral support and function that must take place if the poise is materially disturbed.

DISCUSSION

DR. MCKENZIE: Unless we are to pander to a degenerate age we should not rectify postural defects by means of braces, but by training the physical organism so that it can maintain the ideal standard and attitude. While we want all the information that can come from mathematical study of the subject, it must be approached by the general study of the intuitive perception of the right attitude.

DR. C. RIELY: I have thought along the same lines regarding the circulation of the spinal cord as Dr. Goldthwait, and

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have talked over the subject with an anatomist and a neurologist. I had no doubt that it was the pressure of the muscles that caused the stagnation in the anterior and posterior vertebral columns, but thought it was an obstruction in cases of spine disease by the disease in the bodies of the vertebræ, as the veins that enter the bodies are very large.

DR. FREIBERG: How is Dr. Goldthwait going to take the patients from the tuberculosis clinic and give them the chance that other people have in the present state of civilization?

DR. J. E. GOLDTHWAIT: I do not believe it impossible to give them a chance. What has been done is no more remarkable than what can be done. When they use their bodies better they will have greater resistance and more power for work.

Congenital Deformities

DR. AUGUSTUS THORNDIKE, Boston, gave a short historical sketch of theories of causation, which to-day seem to be narrowed down to three: mechanical influence, heredity and maternal impressions. Further study, he said, is needed to reveal the true etiology and chronology of the inception of many skeletal deformities. Such studies must be of three kinds: studies of human embryos, of abortion sacs and of the embryos of certain lower animals.

DISCUSSION

DR. RUGH: I am not yet convinced that maternal impressions play no part in the production of congenital deformities. Recent investigation demonstrates the presence of nerve fibers in great number in the placenta and in the umbilical cord. This has gone a great way toward establishing the fact of a more intimate nerve relation between mother and child than had previously been suspected. I feel that in certain cases this acts as a factor in producing congenital deformities.

DR. MCKENZIE: I do not know what Dr. Thorndike meant by his statement that no case of congenital amputation of the limb very high up had been reported. I have seen lately a boy whose right arm had apparently been amputated just above the elbow.

DR. BAER: I should like to report another case almost identical with that of Dr. McKenzie, in which there was complete amputation just below the elbow.

DR. THORNDIKE: I think that Dr. Rugh is right. It was a surprise to me to find so little about maternal impressions in literature. As I have found cases of amputation high up so rare, I hope the gentlemen will report theirs fully with illustrations.

Bilateral Congenital Dislocation of the Head of the Radius; and Congenital Absence of the Acromion Process, Bilateral

DR. W. G. TURNER, Montreal, read these two papers. The first case presented a marked increase of the length of the radius as compared with the tibia, non-development of the coronoid fossa, and absence of the orbicular ligament. Strong silk was employed as an artificial orbicular ligament. He exhibited photographs and a radiograph of the second case, showing a condition not previously described.

DISCUSSION

DR. BLODGETT: Was there effusion between the head of the radius and the ulna? In that case one would expect to find a rotating condition of the rudimentary muscles.

DR. W. G. TURNER: There was no effusion between the radius and ulna. The upper end of the radius was perfectly movable. I operated on the left arm a year ago, with satisfactory result as to function; though the patient can not get the arm past the midway position.

Other Papers Read

"A Case of Myositis Ossificans with Multiple Exostoses," by Dr. V. P. Gibney, New York; "Some Myogenous Types of Rigid Spine," by Dr. G. B. Elliott, New York; "Toxic Arthritis of the Hip in Children," by Dr. Michael Hoke, Atlanta, Ga.; "Suggestions on the Improvement of Plaster-of-Paris Technic," by Dr. A. H. Frieberg, Cincinnati; "Increased Growth in the Shaft of the Femur Following Fracture," by Dr. John Ridlon, Chicago.

Medicolegal

Admissibility of Lay Testimony as to Mental Capacity

The Supreme Court of the United States says, in the will case of Turner vs. American Security & Trust Company, that the rule governing the admission of the testimony of lay witnesses as to their opinion for or against the mental capacity of a testator, which has been prescribed by this court for the courts of the United States, is easy of statement and administration. Where the issue is whether a person is of sound or unsound mind, a lay witness who has had an adequate opportunity to observe the speech and other conduct of that person may, in addition to relating the significant instances of speech and conduct, testify to the opinion on the mental capacity formed at the time from such observation. In no other way than this can the full knowledge of an unprofessional witness with regard to the issue be placed before the jury, because ordinarily it is impossible for such a witness to give an adequate description of all the appearances which to him have indicated sanity or insanity.

Such testimony has been well described as a compendious mode of ascertaining the result of the actual observations of witnesses. Ordinarily, and perhaps necessarily, the witness, in testifying to his opportunities for observation and his actual observation, relates more or less fully the instances of his conversation or dealings with the person whose mental capacity is under consideration, and it is, of course, competent, either on direct or cross-examination, to elicit those instances in detail. The order of the evidence must be left to the discretion of the trial judge; but, when sufficient appears to convince the trial judge that the witness has had an opportunity for adequate observation of the person's mental capacity, and has actually observed it, then the judge may permit him to testify to his opinion.

This is not to say that, in a very clear case, an appellate court ought not to review the discretion of the trial judge. For instance, if it should appear that the witness had never spoken to the testator or seen any significant act, but merely observed him driving from day to day through the streets, and the opinion of such a witness as to sanity had been received, it would be the duty of the appellate court to correct the error. On the other hand, if the witness for years had been in constant communication with the testator, had frequently conversed with him and observed his conduct from day to day, the exclusion of the opinion of the witness ought to be corrected by the appellate court. These are instances of a plain abuse of judicial discretion.

Sufficiency of Testimony of Physician as to X-Ray Photograph

The Supreme Court of Iowa says, on the second appeal in the assault case of State vs. Matheson, that on the first appeal an exhibit, consisting of an *x*-ray photograph or radiograph which it was claimed showed the location of a bullet close to one of vertebræ was held to have been properly admitted in evidence, being identified by the electrician who made it as such a photograph. On the last trial the electrician who made the photograph was not called as a witness, and it was argued that the exhibit was improperly admitted. The court, however, thinks that there was no error in the ruling admitting the exhibit, for the physician who directed the taking of the photograph, and who was present when it was taken, testified that it was a correct representation of the condition of the subject's body at the time it was taken. This physician would know, as well as the man who operated the machine, that the radiograph was the result of the action of the *x*-ray machine in producing a representation of the bony structure of the body, and of any piece of metal, such as a bullet, which might be imbedded therein. Neither the operator nor the physician would be able to testify that the spot indicated on the radiograph was a bullet, but it would be competent for either of them to testify that the spot was such as a bullet imbedded in the body would produce. For the reasons just indicated, the testimony of the physician that the spot on the radiograph to which his attention was called represented a bullet in the body was also competent.

Current Medical Literature

Medical Record, New York

August 7

1 *Who are the Unfit? C. E. Woodruff, U. S. Army.
2 Tuberculosis of the Pericardium cured by Incision and Drainage. C. L. Gibson, New York.
3 *Ocular Tuberculin Reaction. J. R. Hicks, New Brighton, N. Y.
4 *Brain Tumor with Unusual Symptoms. J. E. Dale, Fort Collins, Colo.
5 Mumps vs. Tetanus. D. I. Macht, Baltimore.
6 Unreliability of Measurements of Ancient Skulls. A. L. Benedict, Buffalo.
7 Tabular Report of Cases of Cancer Treated with Trypsin. W. S. Bainbridge, New York.
8 *Ivy Poisoning. A. W. Baird, New York.

1. **Who Are the Unfit?**—Woodruff claims that there is one form of unfitness which is causing dreadful disability wholly unnoticed—unfitness to climate when there is a migration to a climate markedly different from the ancestral one. Previous studies of the nervous and insane, he asserts, have shown that those most out of adjustment to this sunny climate, that is, the blonds, furnish a higher percentage of cases than they should, or than they do in cloudy places, like Scotland. The new studies of criminals and paupers show that the same factor is at work here too, among the myriad other causes of these unhappy types of human rejects. Similar studies among European criminals have not shown anything of this nature, because the populations are not migrants. Indeed, in Europe, it has always been customary to think of the criminal as brunette. In a visit to Clinton Prison, in New York State, where the worst classes of criminals are confined, and where he expected to see the place full of modern "black beards," Woodruff was astounded at the large number of blonds—some of them of very light type. It seemed as though the facts as to the brunetteness of criminals were the reverse of the popular idea on the subject. Of 279 white men whose eye color is mentioned, 144 had blue eyes, 40 gray, hazel and light brown, and only 95 dark shades of brown. The hair color of 253 was available for comparison and shows a general correspondence with the eye color. There were 19 with very light hair, 61 with light brown and brown, 61 dark brown, and only 112 black. The two extremes of very dark brunettes and very light blonds, such as the typical swarthy Italian and the yellow-haired Scandinavian, are in a decided minority, but the medium types tend strongly to blondness. It is safe to say, nevertheless, that blonds do not constitute anywhere near half of our population, which is notoriously brunette, with brown or gray eyes and dark hair in decided preponderance. The explanation of this local phenomenon is as follows: Criminologists are of the opinion that there is no criminal type, but that there is an instability of the nervous system or neurasthenia which is the basis of habitual crime. Hence, in America we find more nervous instability among the blond types and more of them drift into crime as a result. In many other ways, they prove their unfitness for these southern climates, notably an increased susceptibility to disease. Light affects the young far more than it does the parents. Hence blond adult immigrants may remain in fair health, but the deterioration begins in the next generation. Therefore we should not expect to find very many foreign-born among these blond criminals. The report of the superintendent of New York prisons shows that only 22 per cent. of the criminals in Clinton Prison are foreign-born and most of these foreigners are from brunette countries, like Italy, Poland and Russia. Very few come from blond countries, for only five were born in Scotland, one in Sweden, and none in Norway. The native-born, therefore, furnish the great majority of the blue-eyed professional criminals in New York.

3. **Ocular Tuberculin Reaction.**—The method of sterilizing the eye preparatory to using the tuberculin test as carried out by Hicks is as follows: For four days the patient's brow and face are washed with soap and water three times a day, and a 1/8000 solution of bichlorid of mercury is dropped into the eye after each washing. At the end of six days a culture is taken, just as in diphtheria, and incubated. If at the end of twenty-four hours or longer there are any colonies, the bichlorid solution is resumed for two days; then the eye is irrigated for two days more, twice a day, with physiologic saline solution to wash away the bichlorid and any organisms remaining. The next morning another culture is taken and incubated for twenty-four hours and cover slide preparations are made and examined, and if no organisms are found, the tuberculin test is made in the usual way. The eye after irrigation with saline solution is bandaged the afternoon before to keep foreign substances out. Hicks has failed to get any specific reaction in a number of cases when the test is applied in the above way, when without sterilization he has obtained the reaction in Bright's disease when there was no reason to suspect tuberculosis.

4. **Brain Tumor.**—Dale describes the case of a lad who suffered from brain tumor, but had none of the typical symptoms of cerebral compression. His symptoms indicated gastrointestinal irritation up to a few hours before death. The lad died of respiratory failure. The tumor was very small and was situated in the fourth ventricle, attached to its roof, to the right of the median line and directly over a point in the floor a little posterior to the center. It was an endothelioma.

8. **Ivy Poisoning.**—Baird has formulated the following treatment for ivy poisoning: (1) No scratching; (2) no ointments in the acute stage; (3) no bandages, for these tend to spread the poison to adjacent surfaces; if any protector is necessary, let it be a loosely applied dressing of absorbent cotton, kept moist at all times and changed at short intervals; (4) frequent and copious washings with lukewarm water and an unirritating soap; in handling the inflamed surface it is best to wear rubber gloves; (5) after the parts are washed, apply 2 to 4 per cent. warm solution of permanganate of potassium. This completely neutralizes any poison with which it comes in contact; the strength of the solution and the frequency of application are matters of judgment with the physician; (6) after the acute stage is past, ointments are permissible.

Boston Medical and Surgical Journal

August 5

9 *Etiology of Tumors Considered from the Standpoint of Congenital Tumors and Tumors Following Repeated Injuries. S. B. Wolbach, Albany, N. Y.
10 Surgical Significance of Pus, Blood and Bacteria in the Urine. E. A. Codman, Boston.
11 Superficial Dermatitis of the External Auditory Canal. C. J. Blake, Boston.
12 *Psychasthenia. A. H. Ring, Arlington Heights, Mass.

9. **Etiology of Tumors.**—Wolbach endeavors to present data which support the belief that the congenital tumors and tumors of infancy and early childhood most commonly take origin from isolated or misplaced cells. At least there is very positive evidence that certain tumors, such as the teratomata, hypernephromata, mixed tumors of the kidney and parotid and the retinal tumors arise from such errors of development. In the second part he endeavors to show that in the cases of *x*-ray carcinoma and a few other instances, such as bilharzia disease and Kangri carcinoma, there is a proved causal relationship between malignant tumors and antecedent pathologic processes. The more peculiar the source of the injury, the greater is the value of the evidence when the association is marked by a strikingly large number of cases. The similarity in the evolution of the skin carcinoma in widely different kinds of exposures points to a common underlying process whatever the nature of the injurious agent. In the cases of *x*-ray carcinoma and bilharzia carcinoma, there is a proved similar antecedent pathologic process. *X*-ray carcinoma is to be regarded as the first instance of an experimentally produced malignant tumor. Its occurrence following definite lesions of the skin, of a continuous and progressive character, places the whole subject of carcinomata following repeated injuries on a firm basis. It designates this field of investigation as the most promising one for research into the origin of carcinoma, because we have at least one and perhaps several examples of proved causal relationship.

The facts presented do not speak for belief in simple trauma as a cause for tumor production. They do indicate that long-continued progressive lesions of connective tissue supporting epithelium are responsible for the acquisition of malignant properties by the epithelium. Finally, it may be said that no series of experiments on animals, in the attempt to produce tumors, has ever been carried out which in any way approached duplication of those conditions found in man

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associated with the production of cancer. The element of time is, perhaps, the most important factor. Many years always elapse between the onset of the antecedent pathologic process and the occurrence of cancer. In the case of the *x*-ray, ten years is, perhaps, the shortest period.

12. **Psychasthenia.**—Ring believes that Janet, who coined the word "psychasthenia," intends to include under the term obsessions, manias of doubt, ties, agitations, phobias and the deliria of contact, states of anxiousness, neurasthenias and bizarre sensations of strangeness and depersonalization. These he would group together into a grand psychosis similar to hysteria and epilepsy. Psychasthenia, he says, is at base a disturbance of the feelings, the will and perception, and may range from mere eccentricities in the superficially normal through mild depression to melancholia and dementia. There are two types: (1) those in which the disturbance shows itself principally in motor fatigue, and (2) those in which the principal affection is in the sensory-motor and emotional sphere, the latter offering the less favorable prognosis. Phobias result from an unhealthy, prolonged feeling-tone of depressing ideas and may be conscious or subconscious. Doubts and indecision are evidence of fatigue of the higher centers which preside over formative and newly synthetized associations. The final judgment is thus rendered difficult or impossible and the victim finds himself in a state of vacillation and with a tendency to revert to the lower and simpler associations long formed. Weakened cerebral inhibition also plays its part. Obsessions and impulsions are the emotional result of the above factors and show themselves principally as a failure to inhibit the feeling-tone of ideas automatically repeated, yet the all-pervading asthenia checks the impulses short of accomplishment. Psychasthenia should be differentiated from hysteria, epilepsy, dementia præcox, manic-depressive insanity and paresis.

New York Medical Journal

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13 *The Bacteriology of Gonorrhea. N. P. Rathbun and T. H. Dexter, Brooklyn.
14 *Leucocytes in Tropical Malarial Infections. P. T. Talbot, New Orleans.
15 *Achylia Gastrica and Insufficientia Pylori. A. L. Benedict, Buffalo.
16 *Does Zymosis Gastrica Solve the Soil Problem of Tuberculosis? M. I. Knapp, New York.
17 Herpes Simplex. F. C. Knowles, Philadelphia.
18 Symptomatology and Diagnosis of Pancreatic Disease. L. Louria, Brooklyn.
19 Tuberculous Infection through the Tonsil and Adenoid. J. A. Pratt, Aurora, Ill.
20 Nasal Tuberculosis Terminating in Tuberculous Meningitis. A. J. Huey, New York.

13. **Bacteriology of Gonorrhea.**—Rathbun and Dexter claim as the result of clinical observation and investigation (1) that there are numerous cases of uncured gonorrhea which have no subjective symptoms or apparent objective symptoms other than those which can be determined by cultures made from secretions from the genitourinary tract; (2) that freedom from pus cells in the expressed smear from a prostatic secretion is by no means an evidence of cure of chronic prostatitis; nor is the presence of pus cells in a smear from the expressed secretion an indication of gonorrheal infection of that gland, nor is the presence of a Gram-negative diplococcus in the smear of this secretion a positive indication of the existence of gonorrhea of the prostate. At present we have no means at our disposal by which we can positively assure a patient that he is cured of gonorrheal prostatitis. Our best prospects of determining that fact lie along the line of perfecting methods of distinguishing the gonococcus from other organisms which so closely resemble it, and which may be accomplished by further experimental work with various culture media and proved by experimental inoculations. The authors found that the growth of the Gram-negative diplococcus on the blood serum which can not be transplanted to other media is strongly significant of the gonococcus, whereas Gram-positive diplococci, or Gram-negative diplococci growing on various other media, such as plain agar, potato, etc., are doubtful. The number of cases of uncured and incurable gonorrheal prostatitis is far in excess of what most clinicians are ready to believe.

14. Abstracted in THE JOURNAL, May 1, 1909, p. 1448.

15. **Achylia Gastrica and Insufficientia Pylori.**—Benedict attempts to show that there is such a condition as achylia gastrica and such a condition as insufficientia—or at least, relaxatio—pylori. They are absolutely different conditions, having in common only the element of depression of function, which may be functional in the ordinary sense or as secondary to an organic lesion. They are so different that there can be no question of correct nomenclature or interpretation of a single disease or symptom complex, so different that they may exist independently or may coincide in the same case. There is no characteristic, diagnostic, much less pathognomonic, symptomatology of either. The diagnosis must depend on actual investigation.

16. **Zymosia Gastrica and Tuberculosis.**—Knapp presents the results of the study of the gastric condition of 100 persons appearing at the New York Board of Health clinic for pulmonary tuberculosis. He found that each one of the 100 consecutive cases was one of zymosia gastrica. One patient showed zymosia gastrica many years before his pulmonary conditions developed. It would seem that this occurrence of sporulating, budding yeast is rather more than a mere coincidence, and that zymosia gastrica must bear a certain relation either to the development or to the progress of tuberculosis. Knapp assumes that zymosia gastrica may possibly be held responsible for the soil condition of tuberculosis and that it apparently constitutes some factor in the condition of tuberculosis.

Lancet-Clinic, Cincinnati

July 17

21 Two Cases of Gross Cerebral Hemorrhage. A. E. Stearne, Indianapolis.
22 Gallstones. R. J. Jones, Greenfield, O.
23 Uterine Disease—Chronic Endometritis, Endocervicitis. C. S. Ashfield, Cincinnati.

Kentucky Medical Journal, Bowling Green

July 1

24 Roentgen Ray. E. T. Bruce.
25 Standardization the Foundation of Professional Pharmacy. F. E. Stewart, Philadelphia.
26 Diagnosis of Acute Intestinal Obstruction. J. H. Blackburn, Bowling Green, Ky.
27 Leptomeningitis. G. T. Fuller, Mayfield, Ky.
28 Pain and its Indications. J. H. Chrisman, Owenton.
29 Model Management of a Case of Obstetrics. E. B. Houston, Hazel, Ky.
30 Some Obstetric Breakers. W. R. Burr, Auburn, Ky.
31 Eclampsia. M. C. Comer, Bedford.
32 Postpartum Hemorrhage. W. A. Haynes, Howell, Ky.
33 Ocular Disturbances during Pregnancy. A. O. Pingst, Louisville, Ky.
34 The Heart in its Relation to Operative Procedures. H. N. Leavell, Louisville, Ky.
35 Ankylostomiasis. R. G. Allen, Somerset.
36 Medical Ethics. W. London, Franklin, Ky.
37 Effects of Suggestion on the Human Economy. G. Purdy, New Liberty.
38 Treatment of Epididymo-orchitis. E. L. Hedin.
39 Multiple Fractures. R. C. Falconer, Lexington.
40 Use of Drugs in Medicine. J. L. Atkinson, Campbellsville.

New York State Journal of Medicine, New York

July

41 *Voluntary Patients in State Hospitals for the Insane. A. W. Ferris, New York City.
42 *Epilepsy. W. H. Kidder, Oswego, N. Y.
43 *Suggestions from Physiology in Treatment of Renal, Cardiac and Vascular Diseases. W. M. Gibson, Utica, N. Y.
44 Leukemia: A Symptom, Not a Disease. H. G. Webster, Brooklyn, N. Y.
45 Gastroenterostomy. E. A. Vander Veer, Albany, N. Y.
46 *A New Plastic Operation for the Relief of Cicatricial Palatopharyngeal Contractures and Adhesions. J. O. Roe, Rochester, N. Y.
47 *Problem of Efficient Nursing for Persons of Moderate Means. W. O. Stillman, Albany, N. Y.
48 Descending Exercise in the Treatment of Disease. H. Stern, New York City.
49 *Nature of Foot and Mouth Disease. V. A. Moore, Ithaca, N. Y.
50 Renal Tuberculosis. W. S. Nelson, Utica, N. Y.
51 Nervous Symptoms of Chronic Diffuse Interstitial Nephritis. S. Baker, Utica, N. Y.

41. Abstracted in THE JOURNAL, Feb. 13, 1909, p. 581.

42, 43, 47, 49. Abstracted in THE JOURNAL, Feb. 20, 1909, pp. 654, 655, 657.

46. **Palatopharyngeal Contractures.**—In Roe's case, the fauces were so extensively lacerated during an attempt to excise the tonsils, about four months before, that when healing had taken place there was a complete synechia or adhesion between the soft palate and the pharynx. There was complete occlusion of the posterior nares, except for a very small opening through which an ordinary small silver probe could

be passed. The adhesion was so thick and the tissues so infiltrated with inflammatory deposits, the result of the extensive inflammation that followed the operation, that the obtaining of a healed opening at each side through this thickened tissue proved to be practically out of the question. As it was necessary to cover but one surface of this opening, the upper or palatal side was most available. A rather broad flap was taken from the inside of the cheek near the lower jaw, including sufficient submucous connective tissue to assure the vitality of the flap. This was then brought down and the end turned backward and upward around the lower border of the soft palate, which had been sufficiently denuded of its mucous membrane around its lower border to secure union. This flap was then stitched at the sides and also through and through along the upper border of the end of the flap that had been turned up behind the palate.

Complete union of the flap took place, and on healing there was no undue contraction at the site of these flaps, nor was there the slightest inclination for a readherence of the soft palate to the pharynx at any point, all of which was very gratifying. The surfaces from which the flaps had been taken were speedily covered with mucous membrane and soon all traces of it disappeared. The central portion of the palate was thickened, and this thickened tissue was utilized by cutting and stitching it into shape so as to form a very desirable uvula. As the levator palati muscles had not been sufficiently injured to destroy their function, by the construction of this new uvula the function of the soft palate in closing the posterior nares during deglutination and phonation was almost completely restored.

Southern California Practitioner, Los Angeles

July

52 Control of Disease by Prevention. W. J. Barlow, Los Angeles.
53 Pulse Counting by Nurses. J. C. Ferbert, Los Angeles.
54 Present Popular Interest in Psychotherapy and Religiotherapy. C. L. Allen, Los Angeles.
55 Diagnosis of Inflammations of the Colon and Appendix. D. Fulton, Los Angeles.
56 Diagnosis of Affections of the Biliary Tracts. R. Smith, Los Angeles.
57 Plague in Seattle. W. Wyman, Washington, D. C.

United States Naval Medical Bulletin, Washington, D. C.

July

58 *Treatment of Elephantiasis by Internal Administration of Tinctura Ferri Chloridi. P. S. Rossiter, U. S. Navy.
59 Syphilis. W. J. Zalesky, U. S. Navy.
60 Pathology of Epidemic Asthma. O. J. Mink, U. S. Navy.
61 Etiology of Heat Prostration. A. G. Grunwell, U. S. Navy.
62 Liver Abscess from the Point of View of Etiology and Prophylaxis; Pathology and Differential Diagnosis; and Treatment. G. B. Crow, J. A. B. Sinclair, and G. F. Cottle, U. S. Navy.
63 Appliances Improvised on Sick-bay Bunks. C. M. de Valin, U. S. Navy.
64 Fracture of Patella: Operation at Sea. N. J. Blackwood, U. S. Navy.
65 *Recurrent Nasal Hemorrhage. R. Spear, U. S. Navy.
66 *Traumatic Pneumonia. C. F. Sterne, U. S. Navy.
67 Liver Abscess. M. A. Stuart, U. S. Navy.

58. **Treatment of Elephantiasis.**—Dr. Dubriel du Broglio, of the French colonial medical service, originated a treatment of elephantiasis consisting of the internal administration of 30 drops of tinctura ferri chloridi three times daily, in combination with bandaging of the affected limbs and complete rest in bed. Rossiter determined to make the experiment of administering the tinctura ferri chloridi without bandaging and permitting the patient to follow his usual mode of life. In every case so treated, the patient has shown decrease in the size of the affected part within a few weeks, and the effect on the fever is apparent even sooner. Rossiter therefore concludes, as a result of these experiments, that tinctura ferri chloridi has a marked effect on the elephantoid process, decreasing the size of the affected parts and restoring function to an even greater degree. Its most marked effect, however, is on the attacks of elephantoid fever, these attacks being markedly lessened in severity, the interval between attacks being greatly lengthened, and in several of the cases the attacks have apparently ceased. In one case of prolonged elephantoid fever with very marked chyluria of three weeks' duration, the chyluria disappeared entirely within sixty hours under the administration of tinctura ferri chloridi alone. So far as can be judged from the number of cases treated, elephantiasis appears to be arrested by this treatment if continued for six to twelve months, and if some method can be devised in conjunction therewith to dispose of the elephantoid tissue already formed, Rossiter believes that a cure may be looked for.

65. **Recurrent Nasal Hemorrhage.**—Spear's patient sustained a fracture of the left nasal bone, the vomer and mesethmoid. At the time of the injury there was considerable hemorrhage from both nostrils. The hemorrhage was controlled by packing. There was severe hemorrhage on a number of occasions afterward. The nature of the hemorrhage was peculiar; the bleeding was profuse while it lasted, and stopped apparently when the blood pressure lowered. Several careful examinations of the nasal cavity failed to reveal the source of the bleeding, but in all probability the bleeding point was situated in the right side of the mesethmoid region. The blood either came from a small artery that had been partially torn by the bone fragments or may have come from a damaged plexus.

There was no hemophilia in the boy's history or in the history of his family. As the case progressed and the boy lost more blood he become more anemic. His condition was critical and it was imperative to control the bleeding. Both facial arteries were tied without success. It was noticed that pressure over the right common carotid stopped the bleeding, so under cocain anesthesia the carotids on the right side were exposed; the external was ligated and a ligature was placed around the internal, but was not tied. This procedure controlled the hemorrhage for thirty hours, when it recurred, but to a much lesser degree. Finally, both nares were plugged with strips of gauze supported by Kyle's long nasal splints. This procedure controlled the hemorrhage. The following day these splints were removed; the bleeding again started, but was controlled by placing two long plugs made of twisted cotton soaked in a solution of boric acid; these plugs were placed in the right nasal chamber well back and upward, on the mesethmoid, and held in position by one long Kyle nasal splint. These plugs were left in place for forty-eight hours, the nasal cavity being kept fairly clean by dropping a little boric acid solution into and about the splint every two hours. The plugs were gently removed and replaced by others of a similar character, which were also left in position for forty-eight hours. These were replaced by one plug which was left in for twenty-four hours. No bleeding occurred after the introduction of the cotton plugs.

During the progress of the case gelatin was given in large quantities by the mouth, as was also calcium lactate and injections of 30 c.c. of rabbit's serum, all with the idea of increasing the coagulability of the blood.

66. **Traumatic Pneumonia.**—In Sterne's case, a man was struck on the left chest wall by a large coal bag while coaling ship. He reported fifteen or twenty minutes after the accident, complaining of severe pain at the seat of injury. Physical examination revealed nothing, except tenderness over the area of chest struck. There was no evidence of external injury other than redness and tenderness. No signs could be elicited which would point to fracture of a rib, nor was there any constitutional disturbance, other than pain on respiration. The injury was therefore treated as a contusion. At 7 p. m. the next day he again reported at the sick-bay complaining of some headache, accompanied by persistent pain in the chest, with some difficulty of respiration. Temperature was 104, pulse 96, and respiration 26. He was put to bed and showed no signs other than slight dulness on the left side from the second to the sixth rib in the nipple line. The treatment consisted in the administration of calomel, in broken doses, a sponge bath, and the application of an ice cap.

On the morning of the second day he had a rather severe nasal hemorrhage, temperature had dropped to 100.5, pulse to 84, and respiration to 22. A painful cough developed, dry in character so that no sputum was available. Magnesium sulphate was administered in dose of 1 ounce with good result. The ice cap was continued and he was given two sponge baths during the day. At 1 p.m. his temperature was again 104, the pulse 96, and respiration 24. Physical signs were still negative. All through this case the physical signs were negative, but the temperature, pulse and character and frequency of the respiration with the rusty sputum were

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sufficient to make the diagnosis. The element of trauma is interesting, as it is a rare cause of pneumonia, and in this case was evidently directly responsible for the disease in view of the fact that the patient was previously perfectly well and had no history of exposure or any of the other well-known predisposing factors in the etiology of pneumonia.

Buffalo Medical Journal

July

68 Urogenital Tuberculosis. B. Lewis, St. Louis.
69 Guess Work in the Practice of Medicine. B. C. Loveland, Syracuse, N. Y.
70 An Interesting Case of Dermatitis Exfoliativa. W. A. Howe, Phelps, N. Y.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

June

71 Diet as a Prophylactic and Therapeutic. H. W. Wiley, Washington, D. C.
72 Therapeutics of Solution of Calcium Creosote. L. Kloipinski, Washington, D. C.
73 Treatment of the Stokes-Adams Syndrome. R. W. Wilcox, New York City.
74 Standardization of Materia Medica Products. F. E. Stewart.
75 The Adrenal Principle as the Main Active Agent in Pituitary, Testicular, Ovarian and other Animal Extracts. C. E. de M. Sajous, Philadelphia.

Detroit Medical Journal

July

76 Serotherapy of Epidemic Cerebrospinal Meningitis. C. H. Dunn, Boston.
77 Treatment by Incision and Wiring of Simple Intractable Fractures with Report of Cases. S. C. Graves, Grand Rapids, Mich.
78 Speech Defects in Children. E. B. McCrady, Pittsburg, Pa.
79 The Screw-Worm Fly with Report of a Case of Myiasis Narium. A. W. Blain, Detroit.
80 Aphasia, Somnolence and Mental Hebetude Following Nasal Operation. E. J. Bernstein, Kalamazoo, Mich.

Archives of Internal Medicine, Chicago

July 15

81 *Hyperalgesia of the Skin Overlying Active Lesions in Pulmonary Tuberculosis. W. C. White and K. H. Van Norman, Pittsburg, Pa.
82 *The Prevalence and Importance of Uncinariasis among Apparently Healthy Southern-Bred White Men in the United States Army. W. P. Chamberlain, Jackson Barracks, La.
83 *Disseminated Miliary Tuberculosis of the Skin. W. Tileston, Boston.
84 Problems in Immunity and the Treatment of Infectious Diseases. P. H. Hiss, Jr., New York.
85 The Clot Culture in Conjunction with the Agglutination Test in Typhoid. R. Lyons, New Orleans.
86 *Modification of the Sahli Butyrometric Test Meal. J. C. Friedman, Chicago.
87 The Blood in Pertussis. J. A. Kolmer, Philadelphia, Pa.

81. Hyperalgesia of the Skin in Pulmonary Tuberculosis.—White and Van Norman have observed that hyperalgesia of the skin to pain, heat and cold sensations is present over active tuberculous involvement of the lungs. It has a very definite distribution, corresponding very closely to the limits of active involvement in the lungs. With the arrest of activity hyperalgesia disappears. Hyperalgesia depends on involvement of the lung and not of the pleura.

82. Uncinariasis Among Southern-Bred Soldiers.—Chamberlain says that infection with uncinaria is very common among southern-bred soldiers during the first three years of service. In 100 men examined, 60 per cent. showed uncinariasis. Among new recruits the percentage of infections is at times as high as 85. Southern-bred soldiers with more than three years' service show a much lower percentage of infection, only 11 per cent. in 33 cases. The worms gradually die out, most of them during the first three years, and under the favorable sanitary conditions obtaining in the army at home reinfection occurs rarely, if at all. The symptoms produced by a light infection with hookworms are so slight that they can not be detected by the usual methods employed by the examining surgeon and the diagnosis must be made with the microscope. An eosinophile count of over 5 per cent. is strong evidence of infection with an intestinal parasite, but one below 5 per cent. is no evidence against uncinariasis.

The parasite in probably all cases is *Necator americanus*. In some cases, the worm probably lives several years in the intestines. In many light infections the ova are difficult to find, requiring the complete examination of five or six coverglass preparations. Farm life is very important as a predisposing cause. Among 74 men who had farmed at some time, 81 per cent. were infected. Most of the men had gone barefooted in childhood, and over half reported having had ground itch, though usually not since childhood. Southern recruits are less well-developed physically than northern ones. Uncinariasis in childhood is a probable cause of this underdevelopment. Light infections do not materially affect the efficiency of the soldier, though the majority of men report that they feel more vigorous after treatment. Treatment of the light infections is of great importance in any attempt to stamp out the disease.

83. Disseminated Miliary Tuberculosis of Skin.—Tileston calls attention to the occurrence in infantile miliary tuberculosis of a skin eruption, which consists of scattered discrete papules, which at the beginning are the size of pin-heads, and are soon capped by tiny vesicles with cloudy or purulent contents. Later on, the vesicle ruptures or dries up, and its place is taken by a crust. It is this stage which is most characteristic. The lesion is then from 2 to 3 millimeters in diameter; that is to say, about the size of a rose spot in typhoid fever, and consists of a flat papule, only slightly elevated, of a dull red color, often glistening. The center is occupied by a crust, on the removal of which there is disclosed a minute but sharply defined dell or hollow, varying in size from the point to the head of a pin. Healing takes place in case the child lives long enough, leaving a tiny white scar surrounded by a halo of brownish pigmentation. The duration of the individual lesion varies from one to several weeks. The spots appear in crops, so that all the different stages may be present at the same time. Rarely a vesicular type of eruption is seen, with vesicles up to the size of a small pea, surrounded by a slightly elevated area of redness and infiltration. This form likewise shows, when in the crusting stage, the characteristic hollow in the center.

The distribution is fairly constant, the majority of the spots being situated on the buttocks, genitalia and adjacent portions of the thighs; *i. e.*, on the parts covered by the diaper. This is probably due to irritation by the feces and urine, with consequent lowered resistance of the skin. The abdomen, front of the chest, thighs and legs, and sometimes the arms, face neck, palms and soles may show a few spots; the back is usually free, except the buttocks. The eruption is not, as a rule, symmetrical and is seldom profuse, the total number of spots usually not exceeding from twenty to thirty, while often only half a dozen are present. They never become confluent.

Out of 32 cases of tuberculosis in children, in the first three years of life, examined by Tileston, 7, or 21 per cent., have shown the eruption. In view of the fact that most of the children were seen only once or twice, the real proportion must be considerably higher. The list includes cases of tuberculosis of the bones, lymph nodes, lungs, intestines, meninges and peritoneum. All the children with spots who came to autopsy were found to have miliary tuberculosis. It is by no means unlikely, however, that a few spots may appear on the skin in cases with localized tuberculosis, as occurs in older children and adults. In general, the chronic cases are more apt to show spots, while in the acute ones the patients probably die before the eruption has time to develop. Thus out of fourteen patients with tuberculous meningitis, only one had spots. Two hundred children suffering from various diseases, other than tuberculosis, failed to show any eruption resembling the one under consideration.

The cause of the eruption is the tubercle bacillus. In 70 per cent. of the cases, tubercle bacilli were demonstrated within the skin lesions, sometimes in large numbers. In others the bacilli were so scanty that they were found only after a prolonged search. The association with miliary tuberculosis and the presence of tubercle bacilli in the capillaries leave little doubt as to the mode of origin of the process; it is embolic, analogous to the formation of rose spots in typhoid and to the pustular efflorescence of staphylococcus septicemia.

86. Modification of Sahli Butyrometric Test Meal.—The method proposed by Friedman, for the study of the gastric functions is a modification of the Sahli test meal, consisting of one-third condensed milk and two-thirds water, the object being to obtain a stable emulsion of fat. With a very little extra work one can calculate the amount of gastric juice in

the stomach at the time of aspiration, and so determine its real acidity as well as the gastric motility, etc. This yields definite standards for comparison, which enables one to make a more accurate functional diagnosis than is at present possible otherwise. Among the advantages of this meal over the Ewald and Riegel meals is the consideration that the conditions of most of the gastric functions may be determined by a single aspiration. Its advantages over the Sahli meal are its constancy of composition, the ease with which it may be prepared and administered, its strong secretory stimulating powers, and the stability of the emulsion.

Louisville Monthly Journal of Medicine and Surgery

August

88 The Question of Psychotherapeutics. J. J. Moren, Louisville.
89 Pernicious Anemia. W. F. Boggess, Louisville.

Albany Medical Annals

July

90 Medicine and the Medical Profession. A. Jacobi, Albany.

Journal of the Michigan State Medical Society

July

91 Non-Specific Infections of the Intestines. G. H. Thomas, Holland, Mich.
92 Causes of Obscure Fevers in Children. I. L. Poloxker, Detroit, Mich.
93 Modern Treatment of Diffuse Suppurative Peritonitis. F. C. Kinsey, Three Rivers, Mich.
94 Appendicostomy. J. A. MacMillan, Detroit, Mich.
95 Value of Physics Applied to the Practice of Medicine. A. T. Godfrey, Holland, Mich.
96 Hypertrophic Stenosis of the Pylorus in Infants. W. M. Donald, Detroit.
97 Intestinal Obstruction. A. J. Herrington, Bad Axe, Mich.

Journal of Nervous and Mental Disease, Lancaster, Pa.

July

98 Nature of Nerve Force and the Deep Reflexes. S. W. Mitchell, New York.
99 Flaccid Paralysis or Extreme Hypotonia of the Muscles which Poise the Head, and Other Symptoms Indicative of a Cerebellar Tumor. C. K. Mills, Philadelphia.
100 Differential Diagnosis of Grave Hysteria and Organic Disease of the Brain and Spinal Cord, Especially Disease of the Parietal Lobe. C. K. Mills, Philadelphia.

Journal Medical Society of New Jersey, Orange

June

101 The Pancreas as a Possible Field for Surgery. E. M. Foote, New York.
102 The Cancer Problem in New Jersey; Necessity of Early Diagnosis. J. A. McGlinn, Philadelphia.
103 Needs of the Medical Profession in Essex County. W. P. Eagleton, Newark.
104 The Physician in Politics. W. E. Ramsay, Perth Amboy.
105 The Meddlesome Doctor. J. H. Bradshaw, Orange.

July

106 *Recent Advances in Medical and Surgical Work. D. St. John, Hackensack.
107 *Acute Unilateral Septic Infarcts of Kidney, and Acute Diverticulitis of the Colon. G. E. Brewer, New York.
108 Progress in Medicine. T. N. Gray, East Orange.
109 Differential Diagnosis of Scarlet Fever. D. E. English, Summit.

106, 107. Abstracted in THE JOURNAL, July 31, 1909, p. 402.

Western Medical Review, Omaha

July

110 True Conservatism. J. P. Lord, Omaha, Neb.
111 Fracture of the Thigh. A. F. Fitzsimmons, Tecumseh, Neb.
112 Report of Work Performed by the Nebraska State Board of Health for 1908. E. J. C. Sward, Oakland, Neb.
113 Knowledge Gained from the Clinical Findings of Today. J. E. Pulver, Omaha.

Surgery, Gynecology and Obstetrics, Chicago

July

114 *Method of Combined Exploration and Decompression for Cerebral Tumors which Prove to be Inoperable. H. Cushing, Baltimore.
115 Blastomycosis of the Skin. A. Primrose, Toronto, Ont.
116 Treatment of Tetanus by Chloretone. W. H. Hutchings, Detroit.
117 *Transfusion, with Note on Hemolysis. G. W. Crile, Cleveland.
118 Thoracic Surgery; Empyema. A. Vander Veer, Albany.
119 *Preservation of Dissections of Surgical Anatomy with Permanent Color of Muscles, Vessels, Nerves and Organs, by a New Method. E. Souchon, New Orleans, La.
120 *Prevention and Treatment of Sequels of Perineal Prostatectomy. J. E. Moore, Minneapolis.
121 *Resection of the Sciatic Nerve. K. A. MacKenzie, Portland, Oregon.
122 Choice of Time for Operation for Pelvic Inflammation of Tubal Origin. F. Simpson, Pittsburg, Pa.
123 Management of Labor Obstructed by Pelvic Disproportion. R. C. Norris, Philadelphia.
124 *Operative Procedures for Relief of Dystocia. H. A. Miller, Pittsburg, Pa.
125 *Radical Operation for Carcinoma of the Lower Lip. A. E. Hertzler, Kansas City, Mo.
126 *Herniotomy without Buried Sutures. E. M. Prince, Birmingham, Ala.

114, 120, 121. Abstracted in THE JOURNAL, July 31, 1909, pp. 407, 408, 409.

117, 119. Abstracted in THE JOURNAL, July 24, 1909, p. 320.

124. **Operative Procedures for Relief of Dystocia.**—Miller believes that in a perfectly healthy individual in whom there is no evidence of toxemia, it is justifiable to make an attempt to prevent the overgrowth of the child. In properly selected cases induced labor is less dangerous for the mother, carrying with it a lower mortality than either pubiotomy or Cesarean section. The induction of premature labor is probably the choice of procedures in cases in which the delivery can readily be accomplished at the thirty-sixth week or beyond, and in some instances might be indicated a week or more prior to this time. The proper time for interference should be determined by the Stone method of measuring the fetal head while still in the uterus, by careful pelvic measurements, and by repeated bimanual examinations by Mueller's method. It is extremely important to provide skilled care for the premature infant for at least two months after delivery, and the most essential part of this skilled care is that the child be breast-fed, by either the mother or a wet nurse. The method of delivery in any individual case should be determined before labor actually starts, as the maternal mortality comes largely from operations having been done when delivery by the natural forces supplemented by forceps operation have failed. Miller can not conceive of any condition in which craniotomy on the living child is justifiable.

125. **Carcinoma of Lower Lip.**—Hertzler advocates the removal of the glands and the gland-bearing tissue adjacent to the lip, in all cases, including the very early ones. The gland-bearing area would be the submental and the inframaxillary in the first link, and the subhyoid and the submaxillary in the second link, and finally, the deep cervical in the third. Hertzler believes that the first and second links should be removed in all instances. If these are not obviously involved, their removal, together with the gland-bearing tissue in this region, is all that is required. Should they be obviously cancerous, then the third link, the deep cervical glands, on the corresponding side, or both sides, should also be removed.

The removal of this amount of tissue can best be made by an incision passing over either side of the point of the chin, curving over the inferior maxillary bone, extending back to the anterior border of the masseter muscle, hence downward to the point of crossing of the omohyoid and the sternomastoid muscles. The incisions pass on either side of the point of the chin. The object of this is to leave the skin attached at this point, for if the skin at this point is loosened it is difficult to keep the flaps in position over the point of the chin. When the lesion is extensive this point of attachment can not, of course, be preserved. The lymphatics pass on either side of this tissue and there is no reason for its removal. The submental space may easily be cleaned out by pulling the skin to either side. The character of the incision in the lip itself depends on the size of the lesion. As in the breast, the dissection should be begun at the point farthest from the growth and proceeded with toward the lesion. The dissection should begin, therefore, at the angle between the omohyoid and sternomastoid muscles. When the dissection is completed up to the chin, the tumor should be thoroughly cauterized before beginning the operation and protected by a wet formalin pack. The incision in the neck can be conveniently closed with a running suture of silk or catgut. Drainage should be provided for at the lower angle of the wound. For the closure of the incision in the border of the lip Hertzler has adopted a special plan. It is a double loop suture. The advantage of this suture is that the vermilion border is held in apposition, while the knots are all placed on the skin surface of the lip, where they cause no irritation.

126. **Herniotomy without Buried Sutures.**—Prince describes his method as follows: Make an incision one and a half inches above Poupart's ligament down to the fascia of the external oblique, freeing the anterior or external surface of this fascia from fat, etc. Then locate the external ring by stripping

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down the intercolumnar fascia by which this ring is partially covered. Then make the incision through the external oblique on a grooved director passed into the external ring, or without the use of the director, as one prefers. This incision should be so made that the reflected portion of the external oblique above Poupart's ligament will be sufficient to cover the cord. The sac is dealt with in the usual way. The fascia of the external oblique is then dissected from the internal oblique muscle until its edge can be easily brought down to the edge of the internal oblique and transversalis muscles. Both ends of a suture of strong silkworm gut are threaded on a needle. Each needle is passed through the transversalis and internal oblique muscles, both emerging through fascia of the external oblique. Both needles are now passed under the cord. One needle is passed below, the other above Poupart's ligament to the skin surface. These sutures are then tied over a piece of rubber tubing or roll of gauze, which brings the two muscles and fascia of the external oblique in contact with Poupart's ligament. This transplants the cord on top of the fascia of the external oblique. Then make a slit in the fascia of the external oblique to receive the reflected portion of the fascia, which is turned back to expose Poupart's ligament. This reflected portion of external oblique fascia is then pulled into the slit and acts as a covering of the cord. When these sutures are tied the wound is completely closed. The sutures may be made to come out above the wound and tied over a roll of gauze, as the deep sutures, and the wound is then closed by a subcuticular suture. The stitches are usually left in for twelve days. It is essential to have a good quality of silkworm gut.

Medical Herald, St. Joseph, Mo.

July

127 *Public Health Problems of the Nation. W. Wyman, Washington, D. C.
128 *Anesthesia in Children. W. W. Stevens, Kansas City, Mo.
129 Autointoxication. A. E. King, Blockton, Ia.

127, 128. Abstracted in THE JOURNAL, May 8, 1909, pp. 1535, 1536.

St. Louis Medical Review

June

130 Operative Treatment of Hemorrhoids. W. H. Stauffer, St. Louis.
131 Abscess of the Liver. W. Bartlett, St. Louis.
132 Anesthesia. W. E. Leighton, St. Louis.
133 Acute Hemorrhagic Pancreatitis, Following Perforation of a Duodenal Ulcer. L. G. Bartels, St. Louis.

July

134 *Epidemic Meningitis Treated with Flexner's Serum. D. L. Harris, St. Louis.
135 Some Ophthalmic Practices seen in Vienna in 1908. W. E. Klokke, St. Louis.
136 Treatment of Placenta Prævia. H. Schwartz, St. Louis.
137 Study of Chemistry in Medical Schools. W. H. Warren, St. Louis.

134. **Epidemic Meningitis.**—Harris has observed the results of the serum treatment in 14 cases of cerebrospinal meningitis. Of this number, 2 patients died. The remainder recovered. Of those who recovered, the only permanent impairment was deafness in one case.

Southern Medical Journal, Nashville

July

138 *Progressive Pernicious Anemia with Report of Cases. J. A. Witherspoon, Nashville.
139 Diseases of the Female Breast. A. McGlannan, Baltimore.
140 *Malaria: Special Reference to what is not Malaria Fever. J. P. Bates, Nashville.
141 Etiology and Treatment of Diphtheria. O. N. Bryan, Nashville.
142 Problem of the Neurotic. W. H. Witt, Nashville.
143 Eye Injuries and their Immediate Attention. C. Fox, Birmingham, Ala.
144 Surgical Intervention in Treatment of Neurasthenic States. C. M. Rosser, Dallas, Tex.
145. Medical Ethics and Commercialism. C. M. Emmons, Washington, D. C.

138. **Progressive Pernicious Anemia.**—Witherspoon urges that in all cases of pernicious anemia there should be a thorough examination of the stools, special care being used in seeking for the *Bacillus capsulatus aërogenes*. When this bacillus or the percentage of anaerobic bacteria found in evacuations from bowels is large, then after thorough trial at colonic irrigation, and failure to improve symptoms or to lessen the percentage of bacteria, the operation of appendicostomy is warranted.

140. Abstracted in THE JOURNAL, May 1, 1909, p. 1448.

Interstate Medical Journal, St. Louis

July

146 Surgery of Kidney Stone. M. H. Richardson, Boston, Mass.
147 Diagnosis and Treatment of Early Cases of Tuberculosis. L. F. Flick, Philadelphia, Pa.
148 Nature of Cancer and Recent Additions to the Methods of Treating Inoperable Cancers. F. J. Lutz, St. Louis.
149 Melena—Recovery. W. T. Doran, New York City.
150 Aids to the Diagnosis of Tuberculosis, Chiefly by Means of Finding the Tubercule Bacillus. A. E. Taussig, St. Louis.
151 Blood Pressure. J. S. Myer, St. Louis.
152 Aphasia. S. I. Schwab, St. Louis, Mo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 24

1 *Treatment of Disease. W. Osler.
2 Hercules and the Wagoner. D. J. Williams.
3 Esophageal Diverticulum. W. Taylor.
4 Common Types of Sore Throat. A. S. Green.
5 *Wassermann Reaction in General Paralysis of Insane. J. H. Smith and J. P. Candler.
6 Pneumonia Migrans Involving Whole of Both Lungs Followed by Empyema: Recovery. J. Bannerman.
7 Causes of Obstruction Producing Cyanosis During Nasal Administration of Nitrous Oxid. F. Trewby.
8 Treatment of Chronic Inflammations of the Eye. C. G. R. Wood.
9 Hydatid Disease, Recurrence: External Rupture: Recovery A. W. Brodribb.
10 Intra-Abdominal Hemorrhage Associated with Labor. M. C. Barber.
11 Point in the Use of Kollmann's Urethral Dilator. A. MacLennan.
12 Unilateral Development of the Mamma in the Male. J. C. Fyshe.
13 Blotripsis. O. Baker.
14 Arsenic in Locomotor Ataxia. C. Wray.
15 Acute Tuberculous Arthritis. J. R. Keith.
16 Rigor Mortis in a Stillborn Child. C. Eglington.

1. **Treatment of Disease.**—Osler says that the student should follow most carefully the action of those drugs the pharmacology of which he has worked out in the laboratory. He should be sent out from the hospital knowing thoroughly how to administer ether and chloroform. He should know how to handle the various preparations of opium. Each ward should have its little case with the various preparations of the ten or twelve great drugs, and when the teacher talks about them he should be able to show the preparations. He should study with special care the action of digitalis on the circulation in cases of heart disease. He should know its literature. It should be taken as the typical drug for the study of the history of therapeutics. He should day after day personally give a syphilitic baby inunctions of mercury; he should give deep injections of calomel, and he should learn the history of the drug from Paracelsus to Fournier. He should know everything relating to the iodids and the bromids, and should present definite reports on cases in which he has used them. He must know the use of the important purgatives, and he should have a thorough acquaintance with all forms of enemata. He should know cinchona historically, its derivatives chemically and its action practically. He should study the action of the nitrites with the blood-pressure apparatus, and he should over and over again have tested for himself the action, or the absence of action, of strychnin, alcohol and other drugs supposed to have a stimulating action on the heart and blood vessels.

5. **Wassermann Reaction in General Paralysis of Insane.**—Smith and Candler examined a series of spinal fluids from cases of general paralysis and other diseases. The method employed was essentially that of Wassermann. They used ox blood corpuscles instead of sheep's. They examined 175 samples of cerebrospinal fluid, derived from 127 individuals. Of these 127, 64 were cases of general paralysis, and in 59, or 92.1 per cent., a positive result was obtained, while in 5, or 7.8 per cent., the reaction was negative. These 64 cases include 7 from which the fluid was obtained only after death, and all of these gave positive results. It might be objected that the examination of such postmortem fluids could give no trustworthy results. In the case of cerebrospinal fluids, however (whatever may be the case with serums), this is not so. If the fluid is withdrawn within twenty-four hours after death from a body which has lain in the cold room during the in-

terval (as was done in all the authors' postmortem cases), the Wassermann reaction is not altered. Examinations were made of such fluids from over 30 control cases, with no positive results." The spinal fluid even of a general paralytic, which had been negative during life, remained so after death. Of 21 cases undoubtedly in the most advanced stages of the disease, over 90 per cent. gave the reaction, while of 16 cases, certainly in a middle stage, only 81 per cent. were positive. They also examined 9 cases (not included above), in which the definite diagnosis could not be made clinically, though it was considered possible that general paralysis might develop. These all gave negative results. Fluids from 63 cases in which the patients were not suffering from general paralysis were examined, in 32 of which the fluid was obtained during life. In no single instance was a positive reaction obtained. These cases included melancholia (9); senile mania (10); epilepsy (2); cerebral tumor (2); cerebellar tumor; syphilitic meningitis; lues cerebri; tuberculous meningitis; alcoholism (3); disseminated sclerosis; dementia præcox; posthemorrhagic and other softenings; and a few fluids received for diagnosis of tuberculous or epidemic meningitis.

In suspected general paralysis the authors claim that a positive Wassermann reaction with the cerebrospinal fluid is practically diagnostic. In only two other conditions is it ever obtained, namely, in tabes and in syphilis located in the central nervous system of the meninges. In tabes it occurs regularly, but with much less frequency than in general paralysis.

Lancet, London

July 24

17 *Desirability of Early Operation in Acute Cases of Appendicitis. G. H. Lee.
18 Modern Progress in our Knowledge of the Pathology of General Paralysis. E. Jones.
19 Intramuscular Treatment of Syphilis, with Special Reference to the Insoluble Preparations of Mercury. G. Pernet.
20 Investigation into the Action and Uses of Fibrolysin in Middle-Ear Deafness. J. G. French.
21 Fate of Damaged Joints. R. Warren.
22 Painful Heels. E. R. Morton.
23 Purpura Hemorrhagica, with Abdominal Crises Due to Intestinal Effusion. G. P. Mills.
24 Treatment by Radium of Lymphatic Obstruction (Cervical, Submaxillary, and Axillary), in a Patient Suffering from Filaria Nocturna. A. A. Warden.
25 District Medical Officers and Report of Royal Commission on Poor-Laws. M. Greenwood.
26 The Prism as an Aid to Diagnosis and Paralytic Diplopia. R. R. Ferguson.
27 Case of Ruptured Uterus with Perfect Recovery. R. N. Geach.
28 Spasmodic Torticollis Following Chorea. T. E. Lister.

17. **Early Operation in Acute Appendicitis.**—Turner says that if acute cases are treated by early operation, when once the condition is clearly diagnosed, the mortality of such early operations, although done during the attacks, should not be, and will not be much, if at all, greater than of those done between attacks. He attributes the present mortality of operations during attacks almost entirely to delay.

Annales de Dermatologie et de Syphiligraphie, Paris

June, X, No. 6, pp. 353-416

29 *Decortication and Thiersch Flaps to Remove Traces of Tattooing. (Détatouage par décortication.) W. Dubreuilh.

29. **Removal of Tattooing.**—Dubreuilh relates two cases in which he relieved men of disfiguring tattooing by shaving off the superficial layer of the derma. It is not necessary to cut deep, but merely peel the surface. Thiersch flaps applied on this healthy raw surface take hold and grow with remarkable facility. The superficial layer is sliced off with a razor; no grafts are required on regions abounding in hair and sebaceous glands, like the face and nose. The skin heals over without a scar or retraction.

Annales de l'Institut Pasteur, Paris

June, XXIII, No. 6, pp. 441-512

30 *Kala Azar in Children. (Le kala azar infantile.) C. Nicolle. Commenced in No. 5.
31 *Serodiagnosis of Hydatid Cyst Disease. (Séro-diagnostic de l'échinococcose.) Weinberg.
32 Methods of Staining Common to Actinobacillosis, Actinomycosis and Botryomycosis. P. Chaussé.

30. **Kala Azar in Children Near the Mediterranean.**—Nicolle states that twelve cases have been reported of a special infection affecting exclusively children under the age of 6, and encountered to date only in Tunis and southern Italy. The symptoms include pallor, emaciation, enlargement of spleen and liver, fleeting, painless edemas and extremely irregular temperature presenting several maxima during the course of the day, uninfluenced by quinin. A tendency to hemorrhages and purpura is also frequent. The infection runs a long chronic course, and in all the cases differentiated during life the disease proved fatal. The parasite seems to be identical with that of kala azar in India, except that it attacks only children. In three other children now in good health a retrospective diagnosis of the infection has been made, and these cases demonstrate that the little patients may sometimes recover. His research on animals has shown that "infantile kala azar" is a natural infection of the dog. The parasite was found in 4 out of 222 dogs examined at Tunis, but the infection in dogs does not induce as characteristic a syndrome as in children.

31. **Seroreaction in Hydatid Cyst Disease.**—Weinberg reports from Metchnikoff's laboratory at Paris 52 cases in which the diagnosis was confirmed by the findings of the complement fixation test. The blood was found to contain specific antibodies against echinococci; in 26 of the 27 cases with positive findings the operation revealed the parasites. In one case with negative findings the operation revealed a hydatid cyst and the test, twenty days later, induced a positive reaction. The test in hydatid cyst disease seems to be even more constantly positive than the similar test for syphilis, and it is proving an important aid in the clinic. In one case the clinical signs suggested hydatid cyst, confirmed by the pronounced eosinophilia of 7.5 per cent., but the test applied on three occasions gave constantly negative findings. The stools were then examined and quantities of eggs of the trichocephalus were discovered, explaining the eosinophilia, and the operation revealed merely gall-bladder inflammation. In other cases with negative findings in both stools and serum, the supposed hydatid cyst proved to be a hemorrhagic cyst in the pancreas, or abscess in the bile duct. In one case with 10 per cent. eosinophilia the test was negative and the liver hard, but certain findings in the serum were similar to those that had been noted with cancer of the liver, and this proved to be the trouble in this case. In all the other negative cases the test added another element to sustain the dubious diagnosis of some other affection. Examination of 26 other patients who had been operated on for hydatid cysts years before showed the persistence of antibodies in a large proportion, and it was found that in all these positive cases the cyst had been opened, while in the negative it had been removed unopened.

Archives Générales de Chirurgie, Paris

June 25, III, No. 6, pp. 551-660

33 Epithelioma in Testicle of Wolffian Origin. G. Potel and L. Bruyant.
34 Fractures of the Astragalus with Displacement of the Fragments. P. Mauclaire and P. Petiteau.
35 How Long should Bed Rest be Imposed after Operations? (Durée du séjour au lit des opérés.) J. de Fourmestraux.

Archives Générales de Médecine, Paris

June, CC, No. 6, pp. 321-384

36 Leucocyte Balance in the Bronchopneumonia of the Elderly. (La leucocytose et l'équilibre leucocytaire dans la bronchopneumonie des vieillards.) G. Etienne and M. Perrin.
37 Spring-knee. (Etude du genou à ressort.) Bar and Bertein.

Bulletin de l'Académie de Médecine, Paris

June 29, LXXIII, No. 26, pp. 689-720

38 *Diagnostic Importance of Antitryptic Power of Blood Serum (Pouvoir antitryptique du sérum sanguin et sa valeur diagnostique.) F. Widal and S. de Poggenpohl.
39 *Dysenteric Liver Abscess. (Abcès du foie dysentérique nostras.) E. Boinet.

38. **Diagnostic Importance of Antitryptic Power of Blood Serum.**—Widal obtained positive results in 13 out of 14 cases of cancer even when there was no cachexia, as in one case of epithelioma of the upper lip in which the antitryptic index was 1 to 7. In the one negative case the test was made on a moribund patient. In 8 cases suspected of cancer the reaction was negative, and the course of the cases confirmed these findings, the affection proving to be a cyst in the pancreas, tuberculous pleurisy, chronic mammitis, gumma of the lip, nervous spasm of the esophagus or gastric ulcer. This makes 176

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cases on record in which this test has been applied, with positive findings in 91.4 per cent. In 64 other chronic affections—lobar pneumonia, typhoid fever, tuberculosis or nephritis—the reaction was positive in 11 per cent. The high antitryptic index in the 3 cases of typhoid fever may have been connected with the complications observed in these cases.

39. **Dysenteric Abscess of the Liver.**—Boinet describes twenty-one cases of abscess in the liver in France presenting the same characteristics as a tropical abscess. It may follow a mild dysentery which may not have attracted attention, and it may run a latent course simulating a tuberculous process in the lungs, pneumonia, pleurisy or a suppurative hydatid cyst. In acute suppurative hepatitis with multiple abscesses, or an abscess with necrosis, the general symptoms may suggest typhoid fever or severe jaundice and the actual abscess be overlooked. The principal complications of these bacillary liver abscesses are adhesion between the focus or foci and the colon; perforation into the air passages or pleura; pus collecting below the diaphragm, multiple abscesses in the left lobe of the liver, and postoperative bile fistula.

Revue de Médecine, Paris

June, XXIX, No. 6, pp. 425-504

40 Digestive Origin of Respiratory Affections. (Origine digestive des maladies de l'appareil respiratoire.) P. Lereboullet.
41 Study of the Suprarenals. (Caractères macroscopiques des glandes surrénales dans leurs états physio-pathologiques.) A. Sézary.
42 *Local Hemolytic Jaundice. (Formation des pigments biliaires par hémolyse dans les séreuses.) G. Guillain and J. Troisier.
43 Colloidal Metals in Therapeutics. (Etude thérapeutique des métaux colloïdaux.) L. Bonnaud and H. Roger. Commenced in No. 4.

42. See abstract 52 in THE JOURNAL, April 24, 1909, page 1368.

Presse Médicale, Paris

July 14, XVII, No. 56, pp. 497-504

44 *Congestive Edema at Apex Simulating Tuberculosis. (De quelques congestions-œdèmes pulmonaires localisées aux sommets des poumons simulant la tuberculose, et de quelques congestions pulmonaires pérituberculeuses.) G. Caussade and P. Queste.
45 Ascarides Simulating Gastric Ulcer. (Ascaridiose intestinale ayant simulé un ulcère de l'estomac.) R. Gaultier.

44. Edematous Congestions at Apex Simulating Tuberculous Process.—The edematous congestions to which Caussade refers occur in the course of kidney and heart disease, but the tuberculin tests are negative and no tuberculous lesions are discovered at autopsy, although during life auscultation findings suggested an advanced tuberculous lesion. Their true nature is revealed by their changing position at times and their complete subsidence sooner or later in some cases, although in others they may persist indefinitely unless special measures are directed against the congestion. Two typical cases are cited of these apical congestions in the course of chronic nephritis and two with chronic mitral or aortic incompetency. Recurring hemorrhage from the lungs in these latter cases corroborated the diagnosis of tuberculosis, but the subsidence of the apical signs demonstrated that the hemorrhagic tendency was due to the heart trouble and not to tuberculosis. In another case of mitral insufficiency and nephritis the auscultation findings and repeated hemoptysis suggested tuberculosis, but the lungs cleared up under treatment of the heart and kidney disease and the findings became normal, confirming the negative findings of the tuberculin tests. In a youth of 16 with chronic adhesive pericarditis the auscultation findings seemed to reveal the presence of a cavity in one lung, but autopsy showed merely intense congestion of the right apex with not a trace of tuberculosis. When the edematous congestion surrounds a true tuberculous lesion, differentiation is delicate but very important, as the tuberculous lesion may be minute, while the perituberculous is very extensive. Two examples are given of cases of this kind, the prognosis being favorable if the perituberculous congestion is found to be variable or fleeting. In one of this group the edematous congestion developed after influenza and severe tuberculosis was diagnosed, but the signs all vanished in time under revulsive measures, and two years later the young man passed a rigid physical examination for a government position. The signs and auscultation findings in each of the above eight cases are given in detail.

Semaine Médicale, Paris

July 21, XXIX, No. 29, pp. 337-348

46 Biologic Classification of Neuroses and Psychoses. M. Klippel.

Berliner klinische Wochenschrift

July 5, XLVI, No. 27, pp. 1245-1292

47 Pathologic Anatomy of Bilharzia Disease. Goebel.
48 Tumor in Frontal Brain Simulating Syndrome of Tumor in Posterior Cranial Fossa. (Ein Stirntumor unter dem klinischen Bild eines Tumors der hinteren Schädelgrube.) A. Ruckert.
49 *Hemolysis in Paroxysmal Hemoglobinuria. (Hämolyse bei der paroxysmalen Hämoglobinurie.) A. A. Hijmans van den Bergh.
50 Pathology of Secretion of Gastric Juice. (Zur Pathologie der Magenschleimabsonderung.) E. Schütz.
51 *Etiology of Hypertrophy of the Prostate. A. Rothschild.
52 *Erotic and Sympathetic Epididymitis. L. Waelsch.
53 *Modern Obstetrics. (Moderne Geburtshilfe in Klinik und Haus.) Puppel.
54 Report on Collective Appendicitis Enquiry at Berlin, 1907. (Sammelforschung der Berliner medizinischen Gesellschaft betreffend die Blinddarmentzündungen des Jahres 1907.) A. Albu and J. Rotter.
55 *Medicolegal Certificates. (Darstellungsweise gerichtsärztlicher Gutachten.) H. Marx.

49. Carbon Dioxid Responsible for Hemolysis in Paroxysmal Hemoglobinuria.—Bergh announces that study of the blood of three patients with paroxysmal hemoglobinuria has shown that carbon dioxid has much to do with the hemolysis. A thin layer of the defibrinated blood of these patients in a shallow dish placed for two hours in a glass bell filled with carbon dioxid showed pronounced hemolysis when the temperature was reduced a few degrees below ordinary body temperature. There was no hemolysis when the body temperature was maintained, and no hemolysis in numerous other tests with blood from healthy persons at any temperature. This research was suggested by Hamburger's statement that the resistance of normal red corpuscles to dilute salt solution is materially reduced under the influence of carbon dioxid.

51. Etiology of Enlargement of the Prostate.—Rothschild gives a number of illustrations to sustain his assertions that the enlargement of the prostate is the result of a chronic inflammation, the inflammatory foci lying around the mouths of the excretory ducts and thus causing stenosis or occlusion of these ducts with retention of the catarrhal secretion, dilatation and cystic degeneration, the process and results similar to those of retention in any glandular organ. The chronic prostatitis in question is a very long drawn out process, extending over years and decades, and it may be not only clinically latent, but the naked eye may be unable to detect histologic changes in the gland. The microscope, however, will reveal the signs of submucous chronic inflammation in the posterior urethra and of catarrhal proliferation and desquamation of the epithelium in the follicular pouches and outlets of the prostate. Some prostates contain less glandular substance than others, and the effect of the inflammation is felt less on this account. The findings reported confirm the lack of any rational basis for treatment of enlargement of the prostate by castration or severing of the vas deferens or ligation of afferent arteries—all of which are now abandoned. But the anatomic findings suggest the importance of systematic treatment of chronic prostatitis in prophylaxis of hypertrophy of the organ. This is the task of the general practitioner, and he should not fail to institute a three or four weeks' course of massage two or three times a year for several years after subsidence of the acute phase of prostatitis. This will counteract the stagnation of the secretions and development of deposits of round cells at different points, while it will promote the circulation through the blood vessels and lymphatics and favor absorption of inflammatory infiltrates. Of course, after fibrous connective tissue processes have developed, massage is no longer effectual. It may be usefully supplemented by other measures to promote absorption, such as brine and mud baths, etc.

52. Sympathetic Epididymitis.—Waelsch reports a case of frequently recurring pains in the scrotum evidently from acute congestion in a chronically inflamed organ, the result of reflex disturbances in the circulation, sometimes from emotional influences. Tough infiltration in the epididymis and vas can be palpated, but tuberculosis, gonorrhea and syphilis can be excluded in this case; a tendency to internal inguinal hernia on each side can not be regarded as responsible for the recur-

ring pains. The patient was a man of 31 and no benefit had been derived from the most varied treatment during the five years since the first pains were observed; the attacks of pain had grown constantly more severe and the intervals shorter, except that some attenuation had been observed quite recently under the bromids. Waelsch also reports a case of what he calls erotic epididymitis, a form of the sympathetic affection in which the painful congestion is the result of erotic excitement. The congestion subsided under rest and moist heat, but an infiltration still persists.

53. **Obstetrics in the Clinic and the Home.**—Puppel pleads for better instruction of the general practitioner in the indications for obstetric operations and for expectant management of childbirth in the dubious cases. He is convinced that greater familiarity with the use of the inflatable bag will render operative measures unnecessary in many more cases.

55. **Medicolegal Certificates.**—Among the various points of Marx's advice is the warning that each certificate should be made complete, that is, the questions of the judge or other authority should be given along with the answers, and the latter should be couched in language to correspond, so that any third lay party reading the certificate at any time would be able to understand the whole matter and judge it for himself. Another important point is for the physician to weigh the morbid state in comparison with the normal capacity of the individual. The third factor of importance in making out the certificate is the medical judgment of the single event, the accident, etc., assumed to be responsible for the condition. Marx warns further against positive assertions, urging the use of "probably," "possibly" or "nothing conflicts with the assumption that," to modify the positive statements. It is especially necessary to avoid such assertions as "X is mentally sound" as the verdict after a single office examination. Such a positive assertion is permissible only after a long course of observation; the physician should state only that he had not been able to detect any signs of mental unsoundness during his examination.

Deutsche medizinische Wochenschrift, Berlin

July 8, XXXV, No. 27, pp. 1177-1216

56 *Opsonins and Pulmonary Tuberculosis. M. Wolff and H. Reiter.

57 Complement Binding in Relapsing Fever. (Komplementbindung bei Typhus recurrens.) S. Korschun and Leibfreid.

58 *Serotherapy of Incipient Senile Cataract. (Ueber Römers spezifische Therapie des beginnenden Altersstars.) O. Schirmer.

59 *Serum Reaction in the Insane. (Ueber die Much-Holxmannsche Kobragiftreaktion im Blute Geisteskranker.) A. H. Hübner and H. Selter.

60 Ileus after Subcutaneous Trauma. A. Schönwerth.

61 Syphiloma in Rabbit Testicle after Inoculation. (Hodensyphilome bei Kaninchen nach Impfung mit syphilitischem Virus.) D. Mezincescu.

62 *Improved Quantitative Test for Sugar in the Urine. (Verfahren zur quantitativen Bestimmung des Harnzuckers.) H. Citron.

63 *Spectroscopic Test for Occult Blood in Stool. (Neue spektroskopische hämochromogene Blutprobe der Faeces.) C. Karoly.

64 Improved Joint for Artificial Knee. (Kniegelenk für künstliche Beine.) O. Vulpius.

56. **Opsonins and Pulmonary Tuberculosis.**—Wolff and Reiter are in charge of the policlinic for lung affections at Berlin, and they state that the opsonic index ranks just below the subcutaneous injection of tuberculin as the most delicate and reliable aid for diagnosis of tuberculosis. The opsonic index in health ranges from 0.85 to 1.15; a permanently low index suggests a chronic, possible stationary, tuberculous process, while a very low fluctuating index indicates progressive infection. They regard the ocular reaction as the most unreliable of the tubercle reactions; the statement that it indicates only active tuberculosis has not been confirmed by their experience.

58. **Organ Treatment of Cataract.**—Schirmer's experiments failed to confirm Römer's hypothesis in regard to the absorption of lens substance and its therapeutic reaction. He cites Königshöfer's negative experiences over ten years ago with such organotherapy. Börnstein has observed fatal anaphylaxis in rabbits fed with an alien albumin, which suggests the necessity for caution with these organ extracts.

59. **The Alleged Specific Reaction in the Blood of the Insane.**—Hübner and Selter have applied the cobra toxin hemolytic test in 82 cases, but their findings differ materially from those reported by Much. They were positive in less than 50 per cent. of the cases of dementia præcox and manic depressive insanity, while they proved positive also in a number of psychoses, neuroses and in orgahic brain and spinal cord affections.

62. **Improved Quantitative Test for Sugar in Urine.**—Citron regards the technic described as marked progress; even the novice is able to read off the percentage of sugar in the urine in a few minutes with automatic accuracy, and only a single dish is required for the test, a single heating, and no filtering. It is a modification of the iodometric modification of Fehling's quantitative test. The iodometric method consists in heating the urine with Fehling's solution, filtering, treating with sulphuric acid and potassium iodid, and titrating the iodin with sodium thiosulphate and starch. It is based on the principle that the sugar precipitates a proportionate amount of the copper in the Fehling solution and that the precipitated cuprous oxid remains behind on the filter. By the action of the sulphuric acid and potassium iodid on the filtrate, one atom of iodin is liberated for each molecule of the copper sulphate. The tedious decolorization of the Fehling test is avoided, and the iodin reaction in its place is much plainer. Only the copper still in solution—not that already reduced—induces the liberation of the iodin, and the cuprous oxid becomes quantitatively transformed into cuprous iodid. Ten c.c. of the potassium-sodium tartrate solution are placed in a porcelain dish and 10 c.c. of the copper solution are measured out and nearly all is added, the mixture thoroughly stirred. Then exactly 1 c.c. of urine is added, and when all is dissolved, the mixture is heated over a small flame for a minute and a half, to boiling, and then cooled by placing the dish in a vessel of cold water. (While it is cooling the starch solution is prepared.) Then 4 c.c. of a 25 per cent. solution of sulphuric acid are added, when a thick, viscid precipitate is at once thrown down. The solution of sodium thiosulphate is then added from a burette graduated for percentages, a line at a time, and a few c.c. of the starch solution are added. The fluid then turns deep blue or possibly a little more of the sulphuric acid solution and starch solution may be required. More of the thiosulphate solution is then added, a line at a time, until the fluid turns milk white and remains so even when it is stirred. The rest of the copper solution is then added and the rinsing water. If the fluid still remains white the percentage line on the burette is the index of the proportion of sugar in the urine. If a blue tint returns, more of the sodium thiosulphate is added, drop by drop, until a permanent milky tint results. Citron uses a special iodometric burette graduated for urine percentages and a special pipette graduated for 1 c.c. of urine, used with a syringe with a capacity of 2 c.c. The solutions used are: *a*, 34,639 gm. of copper sulphate dissolved in 500 gm. distilled water, to which 1 c.c. of sulphuric acid is added to prevent formation of copper carbonate; *b*, 173 gm. potassium-sodium tartrate, 50 gm. sodium hydroxid and 100 gm. potassium iodid dissolved in 500 c.c. water; *c*, a one-fifth normal solution of sodium thiosulphate containing also 0.1 per cent. sodium arsenate to make it keep better; *d*, a 25 per cent. solution of sulphuric acid, and *e*, the starch solution which he makes by dissolving in half a reagent glass of water a small piece, the size of a hazel nut, of a paste preparation used by photographers. The starch solution is heated to boiling and then cooled.

63. **New Spectroscopic Test for Occult Blood in the Feces.**—Karoly uses pyridin and ammonium sulphid for the test; the reduction is so complete that the test is ten times as sensitive as other spectroscopic methods. The feces are washed with ether and filtered; the residue is extracted with concentrated acetic acid and 0.5 c.c. are mixed with 1 c.c. pyridin; then from 1 to 3 drops of the ammonium sulphid are added. The fluid is limpid and gives the spectrum for hemochromogen. The test is a little less sensitive than the guaiac and aloin test, but more so than the benzidin test. These other tests can be applied for control, if desired, with some of the acetic acid extract.

Fortschritte der Medizin, Leipsic

June 10, XXVII, No. 16, pp. 593-640

65 Movable Cecum. (Coecum mobile.) H. Klose.

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June 30, No. 18, pp. 673-704

66 *Fever and its Treatment. (Fieber und Fieberbehandlung.) L. Lichtwitz. Commenced in No. 17.

66. Treatment of Fever.—Lichtwitz reviews the history of the management of fever as it has varied with the prevailing conceptions of the nature of the high temperature in disease, and outlines the present accepted treatment. This is based on the conception that fever is a salutary reaction on the part of the organism, but that, like all such processes in nature, the reaction may be excessive and overshoot the mark. It is the physician's task, therefore, to watch over the fever, doing nothing if all is going well, but ready at any moment to intervene to keep the salutary reaction within due bounds. If the patient's consciousness is disturbed, the breathing becoming more superficial, the assimilation of nourishment suffering, then gentle antipyretic measures are in order. For this the specific drugs should be given the preference, quinin in malaria, salicylic acid in acute rheumatism, and in other fevers mild external applications of water, with more energetic measures in case of excessively high fever, with digitalis, camphor and caffein in case of collapse.

Jahrbuch für Kinderheilkunde, Berlin

July, LXX, No. 1, pp. 1-122

67 *Lactic Acid and General Metabolism in Infants. (Milchsäure und Säuglingsstoffwechsel.) M. Klotz.
68 *Congenital Tuberculosis. H. Rietschel.
69 Wet Nurses in Ancient Alexandria. (Die Amme im alten Alexandrien.) W. Schubert.

67. Lactic Acid and General Metabolism in Infants.—Klotz has found that small amounts of lactic acid, not more than 1 or 1.5 gm., seem to reduce saponification and promote the metabolism in general when administered to infants. The metabolic findings in six are tabulated in detail; some of the infants were healthy and others recovering from some acute gastrointestinal disturbance. Larger doses render the metabolism more sluggish.

68. Congenital Tuberculosis.—Rietschel relates the particulars of a case in which the physician delivered the child of a woman of 30 in advanced tuberculosis, wrapped it in a towel and placed it on a bed ten feet from the mother. In twenty minutes it was bathed in an adjoining room by the nurse who had arrived too late for the birth. The child was then taken at once to a foundlings' home, where it was received before it was forty-five minutes old. There were no signs of tuberculous infection at first, but they developed after a month or so, and the child died of generalized tuberculosis at the fourth month. Sitzenfrey has reported two similar cases in which infection from the mother after birth seems positively excluded, and yet generalized tuberculosis developed in from three to six months. Rietschel is inclined to attribute the infection to contamination during the stress of delivery, intrapartum infection. As young infants are unable to develop antibodies, such infection during birth is almost inevitably fatal, whether the child remains with its mother or not. When the tuberculosis does not develop until after the sixth month, the infection was probably acquired after birth. He is convinced that the intrapartum infection is much more common than generally recognized, and that there are no grounds for assuming a latency of the tubercle bacilli in the infant organism, which is one of the premises of Behring's theory of tuberculous infection in early infancy.

Münchener medizinische Wochenschrift

July 6, LVI, No. 27, pp. 1361-1408

70 *Clinical Importance of Determination of Antitrypsin in the Blood. (Bedeutung der Antitrypsinbestimmung im Blute.) L. Jacob. Id. in Gynecology. G. Becker.
71 *Special Reaction in Blood in Umbilical Cord. (Besondere Reaktion im Nabelschnurblute Neugeborener.) F. Bauer.
72 *Etiology of Ophthalmic Hemicrania. H. Schneider.
73 *Trigeminal Neuralgia of Dental Origin. P. Preiswerk.
74 *Diagnosis of Lead Poisoning from the Blood. (Zur Diagnose der Bleivergiftung aus dem Blute.) A. Trautmann.
75 Simple Office Technic for Determining Salt and Urea Content of Urine. (Wie kann der Arzt im Sprechzimmer den Salz- und den Harnstoffgehalt des Harns feststellen?) Wunder.
76 Treatment of Fractures. (Zur operativen Behandlung der Knochenbrüche.) Mendler.

70. Antitrypsin Index in the Blood.—Jacob has been applying the antitrypsin test in 100 cases of various affections at Moritz's clinic at Strasburg. The findings show that the proportion of antitryptic ferment in the blood is much increased in a number of different morbid conditions. Constant in cachexia, it is found also in all conditions accompanied by changes in the white corpuscles and also in some cases without these findings. The reaction occurs in too many conditions to be regarded as of any importance for differentiation. Becker reports from Veit's clinic the findings in 135 gynecologic cases. The reaction was positive with carcinoma and also with anemia, chronic septic processes and also after delivery. The research at both clinics was with the Fuld technic.

71. Serum Reaction in the Insane and in the New-Born.—Bauer has found the same reaction which Much found in the insane and called the "psychoreaction" in the blood in the umbilical cord of 14 out of 17 infants examined, while there was no trace of the reaction with the serum of 25 older children.

72. Etiology of Ophthalmic Hemicrania.—Schneider has encountered a typical case in which the attacks followed some exposure to cold or to infection. If the findings in this case are confirmed by others, the symptoms can be ascribed to the action of toxins—not a specific infection, but a specific reaction on the part of predisposed individuals to "catching cold," etc.

73. Trigeminal Neuralgia of Dental Origin.—Preiswerk reports two cases in men in which non-erupted teeth caused a syndrome simulating severe trigeminal neuralgia.

74. Diagnosis of Lead Poisoning from the Blood.—Trautmann has been comparing the blood picture in 233 workers with lead, 100 anemic patients and 100 healthy individuals. The basophile granular red corpuscles were found in much larger proportions in the workers on lead, while in the anemic and the healthy they were below 100 per million. When over 100 per million are found in persons exposed to lead poisoning the latter is almost certain. In forensic cases he suggests 300 per million as the limit. Examination of the blood is thus able to reveal lead poisoning in its incipiency.

Therapeutische Monatshefte, Berlin

July, XXIII, No. 7, pp. 353-408

77 *Treatment of Gastric Ulcer with Ferric Chlorid-Gelatin. (Behandlung des runden Magengeschwürs mit Eisenchlorid-Gelatine.) Bourget.
78 *Chronic Gastrointestinal Dyspepsia and Chronic Dyspeptic Diarrhea in Children. (Chronische Magen-Darmdyspepsie und chronische dyspeptische Diarrhoen des Kindesalters.) R. Schütz.
79 Milk of Thyroidectomized Goats in Treatment of Exophthalmic Goiter. B. Galli-Valerio and G. Rochaz.
80 Treatment of Falling Out of the Hair. (Behandlung des Haarausfalls.) Hübner.
81 *Rubber Gloves in Obstetrics. (Die Gummihandschuhe in der Geburtshilfe des praktischen Arztes.) Mende.
82 Campaign against Malaria in Europe. L. Sofer.
83 *Chloral as Deodorizer in Gangrene of the Lungs. A. Siegmund. Id. Langgaard.

77. Ferric Chlorid-Gelatin Treatment of Gastric Ulcer.—Bourget states that he has been constantly successful with his ferric chlorid method of treating round gastric ulcer, the ulcer promptly healing in fourteen days or less, and he has never witnessed any mishaps from it in nine years of experience. The objection has been made to the method that it requires the use of a stomach tube which some shrink from using with gastric ulcer, but he has never had any trouble from this cause, although he has used the stomach tube thousands of times. Nevertheless, he has modified his technic so as to dispense with the use of the stomach tube for introducing the 1 per cent. solution of ferric chlorid. This is accomplished by mixing the chlorid with a gelatin. He dissolves with gentle heat 100 parts gelatin in 100 parts water and 100 parts glycerin, and when fully dissolved adds 50 parts of liquid ferric chlorid. The mixture is warmed and stirred to a homogeneous mass and cooled in the form of dice, each containing 1 c.c. He allows the ulcer patient at 8 a. m. some milk and zwieback; at 10 a. m. one of the chlorid tablets is taken and in half an hour from 100 to 150 gm. of an alkaline drink. This is made by dissolving in 1 liter of cold water one of ten powders made from 8 gm. sodium bicarbonate, 4 gm. sodium phosphate and 2 gm. sodium sulphate. The noon meal is rice cooked in milk, followed at 3 p. m. with another chlorid gelatin tablet, followed half an hour later with 150 gm. of the alkaline drink. At 6 p. m. rice, at 9 another chlorid tablet and at 10 p. m. 150 gm. of the alkaline

water. The pains rapidly subside and healing is soon complete, he says, under this treatment. In the severe cases with much hemorrhage he rinses out the stomach at once with the 1 per cent. ferric chlorid solution and then follows with the gelatin. In every instance the hemorrhagic tendency was promptly arrested, and he has never had a recurrence of bleeding. Test tube experiments have shown that the ferric chlorid-gelatin tablets are digested by the gastric juice. The chlorid cauterizes the ulcer and the iron helps to restore the hemoglobin lost in the hemorrhage.

78. **Chronic Diarrhea in Children.**—Schütz refers to the diarrhea in children, induced by imperfectly digested food, "dyspeptic diarrhea;" the undigested food passes into the intestines in such form that it sets up irritation. The diarrhea is the admirable defensive reaction on the part of the bowel, and no attempt should be made to check it with drugs, as they do not remove the cause. Treatment should be directed against the causal digestive disturbances and the diet regulated to exclude such articles as examination of the stool shows to be the ones which the stomach or intestines are unable to cope with and normally digest. The food should be such as leaves no waste, and any food which escapes normal digestion becomes useless waste and ballast which tax the bowel and irritate it. The aim should be to establish the balance between the functional capacity of the gastrointestinal tract and the diet, such a balance as adults find on an ordinary mixed diet. His experience with fifteen children presenting typical examples of this dyspeptic diarrhea has demonstrated the importance of regulation of the diet based on examination of the stool so as to exclude from the diet such articles as are seen to escape the action of the digestive processes. Starch insufficiency usually righted itself first in his cases, and he never found it necessary to exclude all carbohydrates. A strictly fluid diet may be necessary in the severer cases, and this is one of the most potent means of conquering diarrhea, he emphasizes, no matter what the underlying disturbance. One child of 5 with severe starch and fat dyspepsia and diarrhea for years gained about 10 pounds in six weeks when the diet was regulated along these lines. Some of the children had severe relapses whenever they attempted to return to ordinary diet. They had to do without vegetables and butter for two years, and even at the end of four years an attempt to eat coarse bread, raw fruit and unsieved vegetables caused the return of the dyspeptic diarrhea. Not until after the fifth year could they eat ordinary mixed diet, but they thrived on the restricted diet and weighed even more than the average for their years. Lavage of stomach and bowel is a valuable adjuvant in many cases.

81. **Rubber Gloves in General Obstetrics.**—Mende has devised a method of keeping rubber gloves sterile and unimpaired in their elasticity and impermeability and always ready for use, and urges their advantages. If for no other reason, gloves are useful on account of the peace of mind of the obstetrician, as they spare the general practitioner all worry for fear the disinfection of his hands has not been complete. The gloves are first scrubbed with warm water, inside and out, and then rinsed and examined for any defect. They are then transferred to a pot of boiling water with tight cover and allowed to boil for five minutes—no longer—and then held up by the fingers with forceps until thoroughly drained, then placed in a preserve jar filled two-thirds full of glycerin which has been previously heated to boiling point and had a little mercuric chlorid added in the proportion of 1 or 2 per thousand. The jar is thoroughly scrubbed and sterilized beforehand and the cover and rubber ring are fitted on air-tight. The gloves are drawn on the hand under water. The fluid enters the glove and opens out the fingers, making it very easy to draw on the glove. The main point in the management of the gloves is not to boil them for more than five minutes and not to leave them in any fluid except the glycerin a moment longer than is necessary. The jars stand wear well; Mende has never had one break even when his carriage or sleigh was overturned.

83. **Chloral as a Deodorizer.**—Siegmund calls attention to the prompt deodorizing properties of chloral, especially for a mouth wash and for the sputum cups in cases of gangrene of the lungs. Specimens kept in a weak solution of chloral have been used for years for demonstrations without odor. Langgaard has a specimen of fish which has kept perfectly for forty years in a glass jar filled with a solution of chloral.

Virchows Archiv, Berlin

July, CXCVII, No. 1, pp. 1-192

84 Changes in Bones of Young Animals on Food Poor in Lime and Rich in Oxalic Acid. (Ueber die bei jungen Tieren durch kalkarme Ernährung und Oxalsäure-Fütterung entstehenden Knochenveränderungen.) H. Götting.
85 Cleft Palate. (Wolfsrachen vom Standpunkte der Embryologie und pathologischen Anatomie.) G. Schorr.
86 Nerve Pigment and the Neuron Theory. E. Neumann.
87 Origin of the Intralobular Epithelial Bile Capillaries. (Beitrag zur Organologie der embryonalen "Leberzylinder.") A. Jaeger.
88 Nodous Periarteritis. Id.
89 Study of Movable Spleen and Enlargement of Spleen. (Zur Kenntnis der Wandermilz und der Splenomegalie.) F. Orsos.
90 Multiple Diffuse Myeloma with Numerous Metastases of Calcification in Lungs and Other Organs. (Myelomatosis ossium.) T. Tschistowitsch and H. Kolessnikoff.
91 Case of Acute Lymphatic Leukemia with Generalized Skin Lesions. R. Rodler-Zipkin.
92 Clinical Anatomic Study of Congenital Soft or "Hole" Skull. (Der angeborene Weich- oder Lückenschädel.) E. Wieland.

Wiener klinische Wochenschrift, Vienna

July 8, XXII, No. 27, pp. 949-988

93 *Serum Reaction in the Insane. (Verhalten verschiedener menschlicher Sera und Blutkörperchen bei der Hämolyse durch Kobragift.) J. A. Hirschl and O. Pötzl.
94 *Diagnosis by Elimination of Drugs in Sputum. (Sputumdiagnose.) F. Falk and F. Tedesko.
95 *Operative Treatment of Trigeminal Neuralgia. E. Hulles.
96 *Operative Treatment of Carcinoma of the Larynx. H. Koschier.

93. **Serum Reaction in the Insane and Others.**—Hirschl and Pötzl report a number of tests of the hemolytic reaction to which Much has recently called attention as specific for the serum in certain forms of insanity. Their experience with fifty cases has confirmed the peculiar high resistance to hemolysis by cobra venom in cases of dementia præcox of the catatonic and hebephrenic forms.

94. **Diagnosis by Means of the Sputum.**—Falk and Tedesko report the conclusions of research which show that salicylic acid is eliminated in the sputum in pneumonia, while there is no such elimination in bronchitic affections. Patients taking 2 gm. (30 grs.) of sodium salicylate gave positive or negative findings according as the morbid process was in the lungs or bronchi. Positive findings were also obtained in pulmonary tuberculosis, more pronounced in the acute cases, but in none so extensive as in pneumonia and pneumonic gangrene. No other drugs seem to pass into the sputum in this way, and they suggest that this property of being eliminated in the sputum renders sodium salicylate peculiarly appropriate in treatment of pneumonic processes, as it insures local action at the points of least resistance. The other drugs tested were methylene blue, antipyrin, guaiacol, etc. They describe the colorimetric technic followed in testing for the salicylic acid.

95. **Operative Treatment of Trigeminal Neuralgia.**—Hulles reviews von Eiselsberg's surgical experience with 63 cases of trigeminal neuralgia during the last ten years with the ultimate outcome. His conclusions are that drugs may relieve and banish the pain temporarily, but are unable to produce a permanent cure. Peripheral operations are almost certain to be followed by recurrence, the interval about the same as with medicinal treatment. Recurrence is also frequent after resection at the base of the skull; excision of the Gasserian ganglion is the only certain cure. If the case is very severe and all three branches are involved, the latter operation should be done without wasting time on the others. If not so severe, injections of alcohol, repeated at need, may prove sufficient or resection at the base of the skull in case only two branches are involved.

96. **Treatment of Carcinoma of the Larynx.**—Koschier tabulates the details of 28 cases of cancer of the larynx in which he operated during the last ten years and reviews series published by others. In 18 cases with an interval of over three years since the operation, 8 of the patients are free from recurrence to date, including 4 out of 5 treated by laryngofissure; 2 out of 10 treated by partial laryngectomy, and 2 out of 3 treated by the total operation. Scarcely more than a fourth of all the cases observed were operable, although

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incipient cancer in the larynx induces hoarseness for months, but the patients seldom consult a physician for this alone. On the other hand, some physicians overlooked the malignant disease and merely prescribed a gargle or treated the patient with a course of sprays for months.

Zentralblatt für Chirurgie, Leipsic

June 26, XXXVI, No. 26, pp. 929-952

97 Simple Apparatus for Artificial Respiration and Aspiration of Air from Chest. (Einfache Apparate für künstliche Atmung und Aspiration von Luft aus der Brusthöhle.) W. D. Dobromyssloff.

July 10, No. 28, pp. 985-1008

98 Nail Extension for Fractures. (Zur Codivilla'schen Methode der Nagelextension am Knochen.) A. Anzoletti.

Zentralblatt für Gynäkologie, Leipsic

July 3, XXXIII, No. 27, pp. 929-958

99 Congenital Multiple Scar Formations in the Face. (Ueber angeborene multiple, symmetrisch gruppierte Narbenbildungen im Gesicht.) O. Kalb.

100 Placenta Prævia. Pankow.

101 *Decapsulation of the Kidneys in Eclampsia. (Zur Nierendekapsulation bei Eklampsie.) P. Alsberg.

102 Use of Michel Clips in Vaginal Panhysterectomy. (Verwendung der Michel'schen Klammern bei der vaginalen Totalexstirpation.) M. Stolz.

July 10, No. 28, pp. 959-1008

103 *Constricting Belt Ineffectual for Postpartum Hemorrhage. (Anwendung des Momburg'schen Schlauches bei Postpartumblutungen.) A. Rieländer.

104 *Acute Peritonitis during Puerperium Cured by Operation. (Fall von akuter Peritonitis in puerperio durch Operation geheilt.) H. Kritzler.

105 Improved Technic for Tamponing Uterus and other Cavities. (Technisches zur Tamponade von Uterus und Wundhöhlen.) Platau.

106 Combined Version and Metreurysis. (Kombinierte Wendung und Metreurynse.) A. Rieck.

101. Decapsulation of the Kidney in Eclampsia.—Alsberg reports four cases in which favorable results were obtained by decapsulation of both kidneys in threatening eclampsia. In two cases the convulsions ceased at once and in the others they become very much milder, although persisting for a short time. One patient was a primipara of 18 with seven convulsions between delivery and decapsulation, but none afterward. The diuresis increased materially in all the cases after the operation, although in only one case did the kidney seem to be in the "glaucoma condition." He regards the operation as indicated when the convulsions are frequent and growing worse, the coma profound, the pulse failing and anuria impending.

103. Momburg Belt in Postpartum Hemorrhage.—Rieländer reports the application of the constricting belt technic in nine cases of postpartum hemorrhage from atony, placenta prævia or laceration of the cervix. No effect was apparent on the hemorrhage, while the general condition suffered to a greater or less degree, the pulse failing, and in one case diarrhea and retention of urine followed the application of the belt. The reason for this failure of the belting technic to arrest postpartum hemorrhage is possibly to be found in the fact that the stomach and intestines are not empty as when a patient is prepared for an operation. Another factor may be the high location of the fundus of the uterus, which renders it impossible to apply the rubber tube around the waist, so that it has to be pushed up close to the costal arch.

104. Operative Treatment of Acute Peritonitis During Confinement.—In Kritzler's case the peritonitis was evidently the result of rupture of an old encapsulated appendiceal abscess. The patient was apparently moribund from the peritonitis, but recovered promptly after laparotomy with provision for drainage and thorough rinsing out of the abdominal cavity, with an artificial anus, injection of atropin to stimulate peristalsis and stimulants. The case encourages intervention even in the most apparently hopeless cases. The procedure relieves the tension of the abdominal wall and may transform the prognosis.

Policlinico, Rome

July 4, XVI, No. 27, pp. 837-868

107 Hemolytic Power of the Bile. (Potere emolitico della bile.) G. Egidi.

108 *Efficacy of Quinin in Whooping Cough. (Chinino nella pertosse.) L. Andalo.

108. Quinin in Whooping Cough.—Andalo has been giving quinin in an epidemic of whooping cough, and states that the disease seemed to be aborted in every case in which quinin was given in large doses systematically for several days in succession and the drug retained. The pertussis was of an unusually serious type, both on account of its intensity, the number of complications observed and of adults affected. His experience suggests an actual causal efficiency of the drug. He has always found exceptional tolerance for quinin in children, no appreciable disturbances having been noted in a number of children in an endemic focus of malaria who took by mistake, for malaria, 6 and 7 gm. of quinin bisulphate. For pertussis he did not hesitate to inject in the course of a day 0.5 gm. of acid quinin hydrochlorid for infants and 1 gm. for children up to the age of 5. On cessation of the tendency to vomit he gives the drug by the mouth and keeps it up for eight or ten days, by which time the disease has usually completely subsided. He relates a number of instances to show the prompt relief from the quinin. One patient had pertussis during confinement, but all symptoms vanished the sixth day under 1.5 gm. of the quinin daily.

Riforma Medica, Naples

June 21, XXV, No. 26, pp. 701-728

109 Certain Albumoses and Peptones which Fail to Give the Characteristic Reactions. (Di alcune albumosi e peptoni che non danno le reazioni finora ritenute caratteristiche.) F. D'Onghia.

110 Inoculation of Rabbit Eye with Syphilis. (Innesti dei prodotti sifilitici nell'occhio del coniglio.) V. Chirivino.

111 Woody Phlegmon. (Il flemmone ligneo.) P. Capasso.

Nordiskt Mediciniskt Arkiv, Stockholm

XLI, Surgery, No. 3. Last indexed July 3, p. 88.

112 *Surgical Treatment of Gastric and Duodenal Ulcer. (Beiträge zur Chirurgie des Magen- und Duodenalgeschwürs.) K. Dahlgren. Commenced in No. 2.

113 *Sarcoma of the Rectum. (Zur Kasuistik des Rektalsarkoms.) E. Key.

112. Operative Treatment of Gastric and Duodenal Ulcers.—Dahlgren's monograph of 172 pages discusses a number of points of interest from his own and others' experience, with summaries of 88 case histories. Among the points emphasized is the necessity for excision of a "callous" ulcer and duodenal ulcer as the only means of cure and prevention of cancerous degeneration. He is convinced that gastroptosis is in certain cases the primary pathologic factor and that it is amenable to gastropexy. A laparotomy may be indicated even for uncomplicated gastroptosis without ulcer, much dilatation or cicatricial stenosis if symptoms indicate a kinking of the bowel and internal or bandage treatment has failed to relieve. Gastropexy is preferable to gastrojejunostomy in such cases, as it avoids the liability to the vicious circle and peptic ulcer. He does not approve of jejunostomy for ulcer except for perforated ulcer with stenosis and extreme debility, rendering a gastrojejunostomy too risky. Gastrostomy is preferable, but he would restrict it to the second place. In case of postoperative paralysis of the bowel, he empties the intestine by an incision, milking out the contents until it is so empty that it subsides spontaneously into the abdomen as the lips of the wound are held apart. To prevent adhesions he pours a large quantity of sterile oil into the abdominal cavity afterward, having found this very effectual. The abdominal incision must be made large enough to enable the mesentery to be drawn out with the intestine without incarceration, and the intestines must be kept constantly moist and warm with hot compresses and salt solution repeatedly poured over them.

113. Rectal Sarcoma.—Key has encountered four cases and cites one from Ekehorn's practice; the patients mostly succumb to recurrence in a few months after operation.

Norsk Magazin for Lægevidenskaben, Christiania

July, LXX, No. 7, pp. 571-664

114 Abnormal Reaction to Diphtheria Antitoxin. (Anafylaktisk shock.) A. de Besche.

115 Research on Blood, Blood Pressure and Changes in Pulse during Application of Suction Mask. (Undersøgelser over blodblodtryk- og pulsforandringer under Kuhn's lungesugemaske.) A. Tillisch.

116 Height of Norwegians. (Om der norske folks legemshoide.) H. Daae.

Ugeskrift for Læger, Copenhagen

May 27, LXXI, No. 21, pp. 557-598

117 *A Few Operations on the Kidneys. (Nogle Nyreoperationer.) H. Kaarsberg.

June 5, No. 22, pp. 599-628

118 **Value and Composition of Certain New Remedies, Etc.** (Værdien og Sammensætningen af nogle Lægemidler og Arkana.) H. P. Madsen.

July 1, No. 26, pp. 713-750

119 *Early Differentiation of Pulmonary Tuberculosis. (Bidrag til Lungetuberkulosens tidlige Klinik.) C. A. Blume. Commenced in No. 23.

117. **Operations on the Kidneys.**—Kaarsberg reports two cases of trauma of the kidneys in one of which the lower part of the kidney was torn as if cut off with a dull knife and yet there was no trace of injury of the skin. The man had fallen under a horse. In another case nephrotomy was done on the kidney left after nephrectomy; complete recovery followed removal of a few calculi. In a fourth case the patient succumbed to heart failure after nephrectomy in puerperal pyonephrosis. This last experience has confirmed him in the view that surgical treatment should be undertaken earlier in such cases.

119. **Early Differentiation of Tuberculosis.**—Blume analyzes his experiences with 110 cases of pulmonary tuberculosis in adults in which the diagnosis was made by discovery of tubercle bacilli in the laryngeal secretion. The patients had little or no cough and irregular or no expectoration, and differentiation was possible only by examination of the laryngeal mucus. Only 1 bacillus was found in 8 cases, from 2 to 5 in 65, from 6 to 10 in 12, and from 50 to 100 in 3. The larynx was generally congested, but there were no subjective disturbances in the majority, merely a little hoarseness in a few. In 12 men and 12 women there were signs of anemia, and the general weakness first suggested tuberculosis; in 10 other men and 3 women pains in the chest were the first symptom, and at least 4 had been under treatment on this account for supposed rheumatism or gout. He discusses the anatomic origin of the pain, and cites some typical examples of each group. In a third group of 15 men and 20 women nervous and psychic symptoms predominated in the clinical picture of the incipient tuberculosis. The physical findings were negative or dubious, and the nervous symptoms were evidently of toxic origin; a course of tuberculin treatment cured these symptoms completely in some of the cases. The tuberculous process may generate toxins both during a progressive and a retrogressive course, as he shows by several examples. He agrees with the view that exophthalmic goiter may in certain cases be due to the tuberculous toxin, reporting a case in a man of 20 supposed to be suffering from gastric catarrh and exophthalmic goiter. Tubercle bacilli were discovered in the laryngeal secretion taken directly from the larynx, and treatment directed against the tuberculous infection had a favorable effect on both the stomach and the other affection. In a fourth group symptoms on the part of the stomach predominated in 9 men and 22 women, vomiting or paroxysmal pain, evidently the work of the tuberculous toxin causing arrosions, inflammation or hypersecretion. The experiences related with patients in this group throw light on many puzzling cases of stomach affections; gastrosuccorrhea under these circumstances may be a defensive reaction on the part of the stomach to the tuberculous toxin. He has witnessed marked benefit on the stomach symptoms in many cases from antituberculosis treatment. He also calls attention to the combination of the tuberculous toxin and the toxin from some other infection as liable to induce a stormy reaction on the part of the stomach. In one such case the patient, a man of 24, was taking the usual course of tuberculin treatment when suddenly symptoms developed suggesting perforation of the stomach, but subsiding as operative intervention was being considered, and explained by the onset of symptoms of follicular tonsillitis. The unsuspected incubation phase of the tonsillitis caused another infectious toxin to be superposed on the tuberculous toxin, the resulting syndrome deceptively simulating perforation of the stomach, although the pre-existing tuberculosis was known in this case. This intensive form of reaction may simulate croup, spasm of the pylorus, appendicitis and kidney colic, or the heart may feel the effect most prominently, with resulting transient tachycardia, or there may be vertigo or entire loss of consciousness. In one of his cases an annually recurring winter cough seemed to be vicariously substituted one year by kidney colics. Bladder colics were observed in one little girl.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

JAHRESBERICHT ÜBER DIE PSYCHIATRISCHE KLINIK IN MÜNCHEN, für 1906 und 1907. Paper. Pp. 183, with 4 illustrations. Price, 3.60 marks. München: J. F. Lehmanns Verlag, 1909.

DIATHESIS AND OCULAR DISEASES. By A. Maitland Ramsey, M.D., Fellow of Faculty of Physicians and Surgeons, Glasgow. Cloth. Pp. 184, with 17 illustrations. Price, $2.00. New York: William Wood & Co., 1909.

MYELOISCHE METAPLASIE UND EXTRAMEDULLÄRE BLUTBILDUNG UND DEREN HISTOGENESE. Von Dr. med. Heinrich Fischer. Sanatorium "Untere Wald" bei St. Gallen (Schweiz). Paper. Pp. 140. Price, 4 marks. Berlin: Verlag von Julius Springer, 1909.

THE MALARIAL FEVERS, HEMOGLOBINURIC FEVER AND THE BLOOD PROTOZOA OF MAN. By Charles F. Craig, M.D., Captain, Medical Corps, U. S. Army. Cloth. Pp. 477, with illustration. Price, $4.50. New York: William Wood & Co., 1909.

HISTORY OF YELLOW FEVER. By George Augustin, Assistant Secretary Louisiana State Medical Society. Cloth. Pp. 1194, with illustrations. Price, $6.00. New Orleans: Published for the Author by Searcy & Pfaff, 724 Perdido Street, 1909.

CLINICAL LECTURES ON NEURASTHENIA. By Thomas Dixon Savill, M.D., Physician to the West End Hospital for Diseases of the Nervous System, Welbeck Street, London. Cloth. Pp. 226. Fourth Edition. Price, $2.00 net. New York: William Wood & Co.

LECTURES ON HYSTERIA AND ALLIED VASOMOTOR CONDITIONS. By Thomas Dixon Savill, M.D., Physician to the West End Hospital for Diseases of the Nervous System, Welbeck Street, London. Cloth. Pp. 262, with 21 illustrations. Price, $2.50 net. New York: William Wood & Co., 1909.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Herausgegeben von Dr. H. Thoms, Professor und Direktor des pharmazeutischen Institutes der Universität, Berlin. Vol. VI. Comprising the work for 1908. Cloth. Pp. 304, with 4 illustrations. Berlin: Urban and Schwarzenberg, 1909.

PRINCIPLES OF SURGERY. By N. Senn, M.D., Ph.D., LL.D., C.M., Late Professor of Surgery, University of Chicago. Fourth Edition. Revised by E. J. Senn, M.D., Formerly Associate Professor of Surgery in Rush Medical College, and E. Friend, M.D., Instructor of Surgery in Rush Medical College. Cloth. Pp. 706, with 231 illustrations. Price, $5.00, net. Philadelphia: F. A. Davis Co., 1909.

GYNECOLOGY. Edited by R. C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School, and C. von Bachelle, M.S., M.D., Assistant Professor of Obstetrics, Chicago Polyclinic and College of Physicians and Surgeons. Vol. IV. The Practical Medicine Series. Under the General Editorial Charge of G. P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Cloth. Pp. 225. Price, $1.25. Chicago: The Year Book Publishers, 1909.

THE PRACTICE OF ANESTHETICS. By Rowland W. Collum, L.R.C.P., M.R.C.S., Anesthetist to St. Mary's Hospital, Paddington, and GENERAL SURGICAL TECHNIQUE, by H. M. W. Gray, M.B., C.M., F.R.S.C., Surgeon and Lecturer on Clinical Surgery, Royal Infirmary, Aberdeen. Edited by James Cantlie, M.A., M.B., C.M., F.R.C.S., Surgeon Seamen's Hospital Society. The Medico-Chirurgical Series No. 1. Cloth. Pp. 382, with 39 illustrations. Price, $3.00 net. New York: William Wood & Co.

New Patents

Recent Patents of Interest to Physicians

926462. Bath and complexion brush. W. R. Blowers, Toronto, Ont., Canada.
926384. Electrotherapeutic apparatus. B. Y. Boyd, Chicago.
926245. Massage instrument. W. H. Coon, Rochester, N. Y.
926103. Bed pan. J. M. Crater, New Germantown, N. J.
926107. Water-bag syringe. G. E. Kim, Pittsburg, Pa.
926579. Operating table. J. Laughlin, Ledyard, Iowa.
926671. Respirator. W. F. Merryman, Denver.
926780. Preparing concentrated hydrated magnesia. W. S. Morrison, Oakland, Cal.
927125. Massaging device. K. Davis, Wilkes-Barre, Pa.
927132. Disinfectant holder. P. Duenwald, Irvington, N. J.
927135. Making acetate of lime. R. W. Erwin, St. Louis.
926963. Thermometer. R. W. Mattox, West Tocoi, Fla.
926999. Producing digestible substances from keratin, C. Neuberg, Charlottenburg, Germany.
926960. Syringe. E. T. Pearl, Passaic, N. J.
927278. Water-purifying apparatus. G. Pfeiffer, Jr., Merchantville, N. J.
926961. Disinfectant apparatus. F. D. Raforth, Dubuque, Iowa.
927097. Medicine timer. A. J. Scritchfield, Janesville, Wis.
927029. Vapor bath apparatus. B. Andersen, Kansas City, Kans.
927764. Sterilizer. R. P. Barnstead, Boston.
927519. Ozone-generator. T. Friedlander, Chicago.
928038. Atomizing solid medicaments. G. Fusch, Hanover, Germany.
927785. Knee warmer. D. L. Galbraith, Bay City, Mich.
928043. Electrical vibrator. M. K. Golden, San Francisco.
927786. Massage tool. H. A. Grass, Chicago.
927531. Toilet chair. W. F. Hedstrom, Los Angeles, Cal.
927951. Invalid's chair. E. E. Higgins, St. Paul, Minn.
927973. Knee-joint for artificial limbs. J. H. Jepson, Minneapolis.
927575. Spring-top powder box. G. F. Miller, Brooklyn.
927881. Method of and apparatus for atomizing, etc. A. Sala, Mexico, Mexico.
928011. Surgical instrument. W. A. Whitlock, Ukiah, Cal.

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